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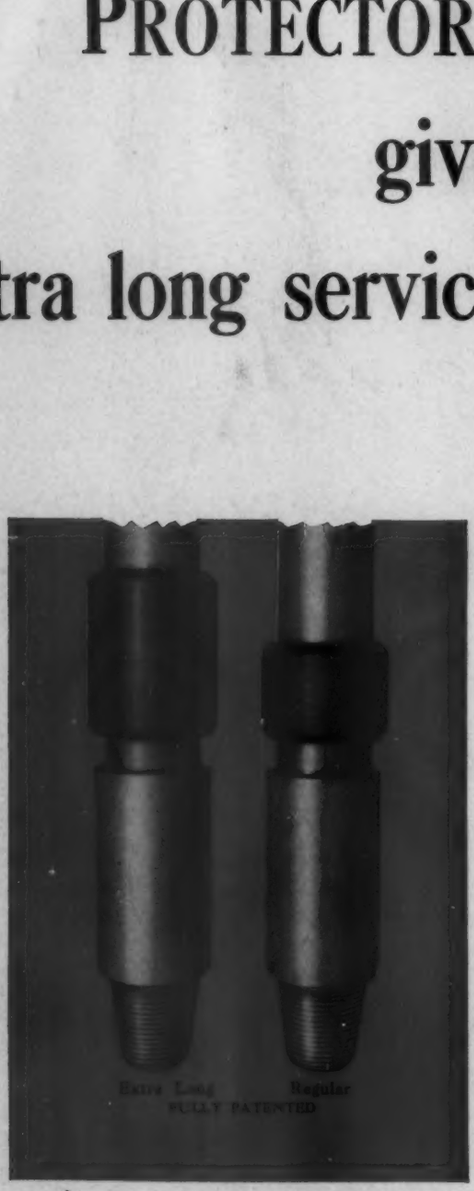

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Texas Is Keystone in Crude Structure

Highest production in 1930, week ending Feb. 22, average daily output 2,699,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Rigid Curtailment of Production in That State Will Insure Good Year in 1932. Other States Will Co-operate

Lowest daily average crude oil production in the United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

By Andrew M. Rowley

Developments in Texas during this month will determine to a large extent the outlook for the industry during the early part of next year. Oil men and public officials in Oklahoma, Kansas and California are in agreement the output of crude oil must be curtailed to a greater extent than at present and that this curtailment, providing for withdrawals of crude oil from storage, must be effective throughout this winter if the industry as a whole is to gain the greatest benefit from its present highly satisfactory statistical position. Texas has been producing considerably in excess of the allowable generally agreed upon for that state last September. With an additional curtailment throughout the country necessary because of the season of minimum demand, the output of fields in Texas must be kept even below the figure set for it last September or below the 902,000 barrel allowable.

Texas never has reduced its production in line with that allowable and has produced as much as 115,000 barrels daily above that figure. Consequently, oil men are somewhat doubtful if the state will reduce its output to the new figure of 825,000 barrels daily recommended as desirable in view of present overproduction. Oklahoma and Kansas are willing to limit crude oil production to any figure necessary for complete stabilization of the industry and to maintain the price structure at a level which will permit operation of the smaller wells. They are not willing to make greater sacrifices, however, if Texas continues to fail to do its part.

Governor Sterling of Texas can do much in the present situation to insure a good year for the oil industry during 1932. Flooding the market with Texas crude oil cannot help but result in economic waste not only for Texas operators and refiners but for the business in other states as well. Returns from sales of crude oil and gasoline will be lessened, as was the case recently, until sales of large quantities of both products will bring in less money than sales of much smaller quantities at present price levels.

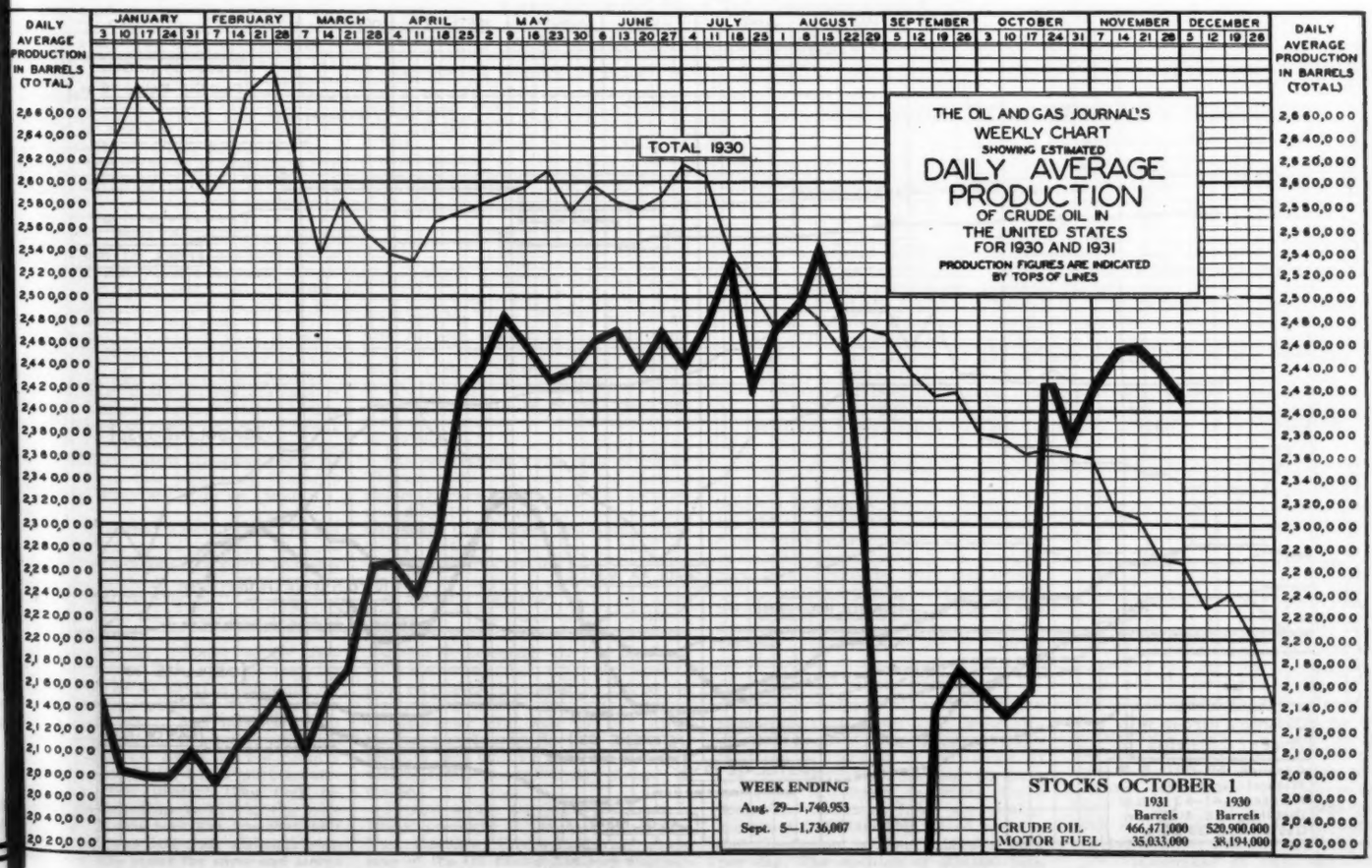
Conditions in California are showing improvement. A better tone is evident in the gasoline market there indicating a solution has been reached on the matter of surplus stocks.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended November 28 and a comparison with the previous week follows:

	Nov. 28	Nov. 21
Oklahoma—		
Oklahoma City	166,135	192,210
Seminole-St. Louis	146,810	156,985
Remainder of State	210,490	209,120
Total Oklahoma	523,435	558,315
East Texas—		
Kilgore	131,041	127,584
Lathrop	125,342	116,942
Joiner	131,601	126,685
Total East Texas	387,984	371,211
West Texas	199,855	202,434
North Central Texas	82,651	83,129
Texas Panhandle	55,608	62,484
East Central Texas	56,478	56,845
Gulf Coast—Texas	121,746	120,056
Southwest Texas	64,710	64,985
Total State of Texas	969,032	961,144
North Louisiana	29,130	29,570
Arkansas	37,525	37,750
Kansas	104,785	104,410
Gulf Coast—Louisiana	32,135	32,425
Eastern	125,000	120,000
Rocky Mountain area	91,555	95,379
California—		
Santa Fe Springs	62,500	62,500
Long Beach	74,500	74,750
Playa Del Rey	23,000	22,550
Elwood	23,500	23,500
Kettleman Hills	64,000	58,000
Remainder of State	256,500	262,700
Total California	504,000	504,000
Total United States	2,416,597	2,442,993

→ **Decrease 26,396 Bbls. Daily** ←



Oklahoma Gasoline Quotations Lower

Refinery Grades Holding Better Than Expected With Sharp Decline in Natural Gasolines. Expect Decline in Plant Operations

By C. O. Willson

Refinery gasolines and natural gasolines continued their price slump in the Mid-Continent market during the past week. In the case of natural gasolines, the decline for the seven-day period ending Tuesday night amounted to one-half to three-fourth cent per gallon on the five grades. Buying has not improved materially with the lower prices and there was no assurance the first of the week that quotations would not seek lower levels.

The situation in regard to other products was mixed. Although the colder weather has stimulated contract shipments of furnace oils and some other grades of fuels, open market quotations on these products reflected weakness rather than strength. Price ranges on the higher gravity fuels, gas oils and regular grades of furnace oils were not changed in the market pages of this issue for Oklahoma but there has been more material available at the lows of the price spreads. A majority of refiners have sufficient contract and open market business in these products to take care of their available output and they have not reduced their quotations but buyers found material more freely available from a few sellers. Despite this situation in regard to fuels, the regular grades of kerosene backed by both export and domestic buying were strong with the bulk of the movement at the top of the going market.

The demand for the low gravity industrial grades of fuel oil is slower and minor adjustments downward have been made in quotations. The heavy fuels with cold tests of from 50 to 90 are a drug on the market and are being sold with wide ranges in prices. More inquiries for wax were reported during the week and no price reductions were announced in bright stocks and neutral oils. The open market for steam refined stocks is weak and prices are lower.

Refinery Gasolines

Refinery gasoline prices on the whole have held up better than was expected by the trade a week ago. It was feared that when the buying support of several refiners was withdrawn the latter part of November that the open market would slump rapidly. Buyers, however, have found that a number of the smaller refiners are not interested in sales which represent a substantial loss in their plant operations.

There has been distress material on the market and still is, coming from a few small refiners who apparently have been forced to sell to pay for their crude oil supplies and meet other current obligations. In most cases this gasoline is coming from skimming plant operators some of which resumed operations in early November when gasoline prices were at the peak of the fall advance.

It is now apparent that these refiners will have to again shut down their plants unless excess crude oil becomes available at prices substantially under the present posted crude oil schedules in the Mid-Continent. The following table reflects this situation based on a Mid-Continent skimming operation:

COST	
38 gravity crude oil, posted price (per barrel)	$1.03
pipe line charge (includes gathering)	.15
Manufacturing and sales	.15
Total	$1.33

REALIZATION	Price per gal.	Return
Gasoline (38 per cent yield, 15.96 gals.)	.0375	.598
Kerosene (10 per cent yield, 4.2 gals.)	.0225	.094
Gas oil (20 per cent yield, 8.4 gals.)	.0125	.105
Fuel oil (30 per cent yield, 12.6 gals.)	.0075	.094
Total		.892

This table shows that based on present costs and plant realizations the skimming plant operator is losing 21.75 cents per barrel. Some operators no doubt have lower costs than shown in the table and also may be getting slightly more than the present open market quotations for their refinery products but it is certain that these advantages could not materially change the average situation shown in

(Continued on Page 103)

REFINED MARKET BAROMETER

Weakness was apparent in gasoline tank car prices in several refining groups. The exception to the rule was the California market where there were fewer reports of price cutting and the market was firmer. The weakness in other areas is due to the failure of refiners to curtail their operations in line with the seasonal decline in consumption reported in all parts of the country. Kerosene prices were generally firm over the week and furnace oil distillates are more in demand with no important changes in prices. Only minor changes were reported in fuel oil and gas oil markets. Natural gasolines slumped rapidly east of the Rocky Mountains. Bright stock quotations were reduced in the East and market on lubricating oils was generally dull. An advance in Pennsylvania furnished the only price change in wax.

Mid-Continent—Natural gasoline prices slumped rapidly. Refinery gasolines also lower in all areas. Kerosene firm. Fractional reductions in several grades of fuels. Lubs dull.

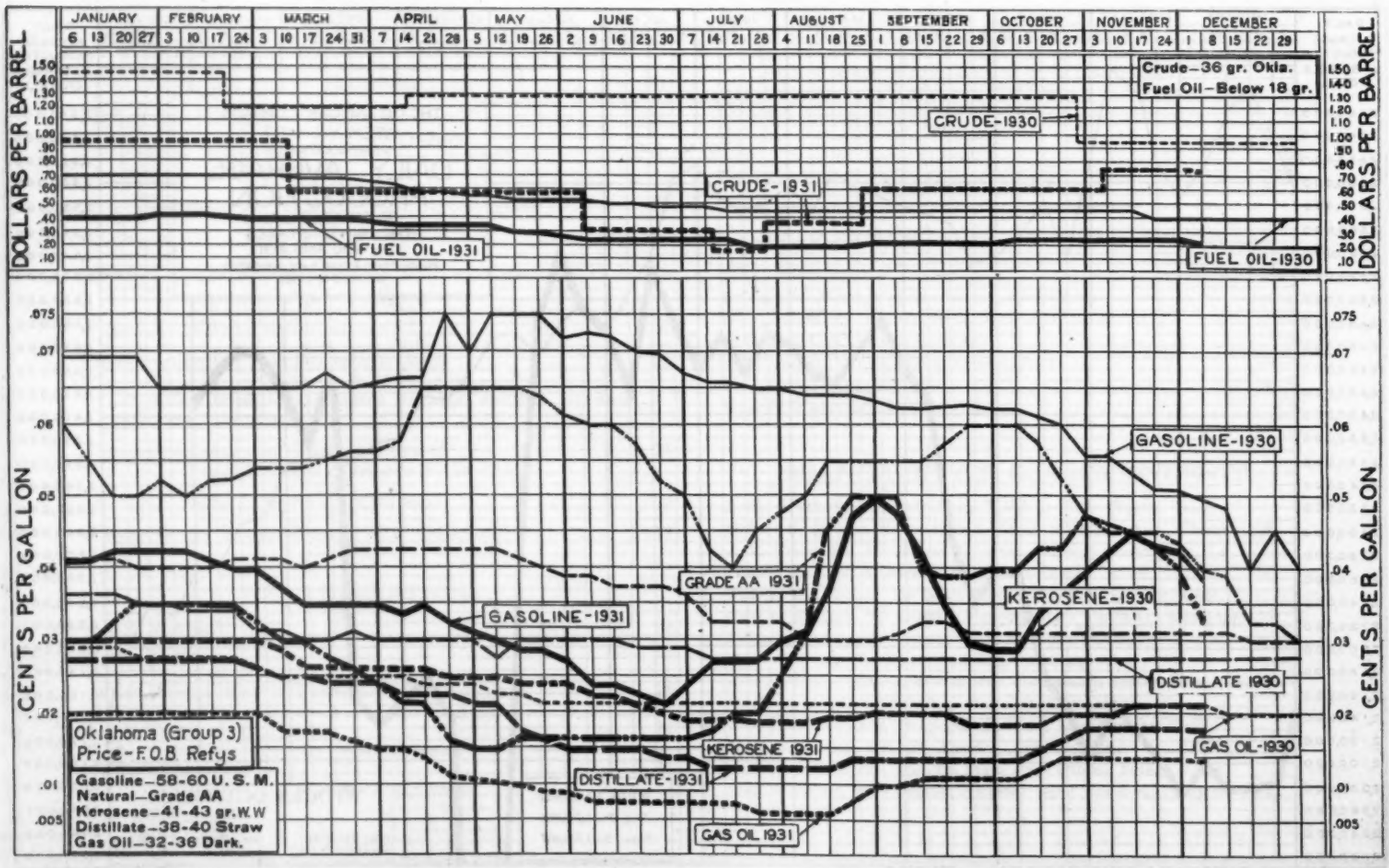
East Coast—Prices on low octane gasolines reduced. Warm weather brings slow movement of heating oils. Bunker fuel and Diesel oil steady. Kerosene demand less active. Gas oil movement steady. Bright stock prices lower. Wax unchanged.

Chicago—General reductions in gasolines and several grades of fuel oil, gas oil and distillate. Seasonal decline in demand for gasoline.

Gulf Coast—Gasoline and lubricating oil market unsettled with lower prices expected. Fuel oil and gas oil unchanged.

California—Better tone to gasoline market. Natural gasolines firm.

Pennsylvania—Gasoline and kerosene less active with no important changes in prices. Gas oil prices lower. Scattered reductions in steam refined stocks and neutral oils.



Overproduction Threatens Oil Prices

Producers, Refiners and Producer-Refiners Must Curtail Operations Rigidly to Maintain Advantages Already Gained

By Andrew M. Rowley

Recent benefits gained by crude oil producers and refiners through increases in the posted prices of crude and higher quotations for gasoline are in danger of being lost through failure of the producing and refining branches of the industry to curtail production of both the raw material and finished products. More gasoline is being manufactured at this time than the market can absorb with the only result that any person of ordinary intelligence can expect—a weakening of the gasoline market. Crude oil production is greater than requirements, and crude oil is going into storage. This fact, coupled with the weakness in the gasoline market, constitutes a threat which producers and refiners must meet and meet quickly if the markets for crude oil and gasoline are to be held at present price levels.

Unless refiners and producer-refiners curtail their runs to stills immediately, in line with the demand they know they will have, further weakness and lower prices in the gasoline market will be an inevitable result.

Unless crude oil producers, especially in the State of Texas, hold the output of crude oil down to a level recommended by all economists, the industry must prepare to undergo another period of depressed prices. And, as every oil man knows, it takes a whole lot longer to procure increases in prices than it does to get reductions.

Statistical Position Splend'd

With the statistical position of the industry the best it has been in years, it certainly is hard to understand why certain refiners and producing areas are deliberately causing the industry to slip back into an economically unsound condition. They either are courting lower prices for crude oil and gasoline or they lack the business intelligence which has been attributed to them.

A large majority of crude oil producers in the United States have done far more than has been asked of them in the matter of curtailing production. This is shown by all records of production and withdrawals from storage. The United States government figures show that crude oil has been withdrawn from storage during every month since March, 1930, the latest report available being for September, 1931. In other words, crude oil has been taken out of storage every month for 19 months up to the first of October of this year.

And these withdrawals have not been infinitesimal quantities. Fifty-four million barrels of crude oil was withdrawn from storage in the United States during the 12 months ending October of this year. Stocks of crude oil on October 1 were 78,700,000 bbls. less than they were on November 1, 1929. Gasoline stocks on October 1 of this year were 3,000 000 bbls. less than they were on October 1, 1930.

These are the factors which finally forced an increase in the price of crude oil. And despite any talk to the contrary the writer is firmly convinced that price increase was entirely justified and that it should have been made long before it was announced.

The petroleum industry is the only business in the United States probably which enjoyed as great a domestic demand for its products this year as it did last year. And producers who were responsible for this record reduction in the crude oil stocks of the country certainly were entitled to a much greater price for their product than they received. Explanations as to why the price of crude oil this year was less than half of what it was last year although consumption was about the same and stocks millions of barrels less sounded rather flat in view of the statistical position.

A small price increase finally was procured. Now it is up to the industry to hold that increase and warrant further and more substantial increases early next year.

Can Make 1932 Record Year

Producers and refiners have the opportunity to make 1932 one of the best years ever experienced in the petroleum industry. And the feat can be accomplished in a few short months. Why they all do not grasp the opportunity seems to be one of the mysteries of the oil business.

Rigid curtailment of crude oil production and the manufacture of gasoline this winter will bring the desired results. I do not mean merely curtailment to requirements but a curtailment which will force further and heavy withdrawals from storage of both crude oil and gasoline. How many companies owning crude oil in storage can stand making withdrawals each month this winter and next spring? Very few and the minute tank bottoms begin to show up there will be a scramble for crude oil with the inevitable result—higher prices.

Why endanger all chances for a highly profitable season next year by failure to do at this time what every person who studies the situation knows should be done and done at once? The industry has suffered so long it can well afford to stick to its guns for three or four months more when it knows that by so doing it will insure substantially better prices and far better conditions. And it must realize the present trend and policies can only lead it back to the position of bankrupt prices from which it has begun to emerge.

The choice of the two highways is plain. There should be no difficulty in making a decision as to which to follow.

Responsibility on Large Companies

The larger companies in the industry bear considerable responsibility in the present situation. Can they justify actions which affect large areas upon conditions which may exist in small localities? Because some tank car distributor in Skedunk is selling gasoline at a cent a gallon under the regularly posted price is no sound basis for a general gasoline price reduction. And because some crude oil producer in need of funds or without outlet for all his production sells that production under the regularly posted crude oil price is no good reason for the large buyers lowering prices for crude oil throughout their territories.

The petroleum industry always has had price cutters and always will have them. Reducing prices over large areas because of some local condition such as mentioned above can be carried to extremes. Any concern which employs such a policy is simply storing up trouble for itself in the future. There won't always be an overproduction of crude oil and the time may come more quickly than some seem to think when crude oil connections will be greatly desired. At that time producers will be able to make a choice as to to whom they will sell their oil.

Refiners who have their own crude oil production and who run excess quantities of crude to stills and then sell the gasoline at reduced prices or prices which in actuality mean a reduction of the crude oil price schedule have a very real responsibility in the present situation. Such a policy weakens the general price structure.

If the petroleum industry really wants better prices for crude oil and gasoline it can get them and get them easily through the simple expedient of adhering to a policy of rigid curtailment of crude oil production and the manufacture of gasoline this winter. If it does curtail no one can stop better prices. The matter is up to the producers, the refiners and the producer-refiners.

Texas Charged With Unfair Tactics

Kansas and Oklahoma Commissioners Feel That Production Should Be Cut Deeper and Call Upon Texas to Help

By James McIntyre

That the oil industry is headed towards another period of ruinously low prices unless crude oil production is curtailed to refinery requirements was the concensus of opinion of a meeting of representatives of the public service commissions of Kansas and Oklahoma with Mid-Continent oil producers and representatives of oil associations, held in Tulsa on Monday, November 30. The blame was laid directly upon Texas oil producers and crude oil purchasers for the condition which the industry is approaching. The fact that Texas has been overproducing from 60,000 to 100,000 bbls. per day, while Oklahoma and Kansas have been producing considerably under their allotment is the reason given for the present general overproduction in the United States, which has made it necessary to again run crude oil to storage.

The meeting in Tulsa was called by Thurman Hill, chairman of the Kansas Public Service Commission. It was attended by Paul Walker, chairman of the Oklahoma Corporation Commission. The Texas Railroad Commission was not represented, the reason given for the absence of any representation having been that oil regulatory rules and regulations in Texas were in the hands of Governor Sterling. The Texas governor was not represented, but Commissioner Hill announced that Governor Sterling was very much interested in any action the meeting might take in the matter. Commissioner Hill said he had called the meeting because he saw where the industry was drifting and he hoped that action could be taken to change its course.

Present at the meeting were Amos L. Beaty, president of the American Petroleum Institute; Cicero I. Murray, chairman of the Oil States Advisory Committee; and William N. Davis, president of the Mid-Continent Oil and Gas Association. Nearly all the major oil companies in Oklahoma and Kansas, some of which also operate in Texas, were represented.

The meeting resolved itself into a general discussion of crude oil supply and demand and at its conclusion the following statement was given out as covering the situation:

Facing Serious Situation

"The oil industry is again facing a serious situation. More oil is being produced and taken from American farms than can be absorbed by the market. If this condition continues for 60 days crude oil will again be selling for a song. The American fields are producing about 2,500.000 bbls. of oil per day and the demand is about 2,200,000 bbls. per day. The addition of 200,000 bbls. per day to the already overloaded stocks can only result in one thing—demoralization.

"Therefore it is up to the producers of Texas, Oklahoma and Kansas to cut production down to conform with consumption—it is the only common sense thing to do. If this is not done, all the splendid work toward stabilization of crude will be lost. Oil in Texas will again sell for 10 cents per barrel and in Oklahoma and Kansas at 20 cents. A blind producer should be able to see what orderly curtailment has done for his pocketbook. No state has profited more than Texas by curtailment. The people of Texas owe a debt of gratitude to Governor Sterling for restoring order out of chaos in Texas oil fields. By his courageous action since last spring, he helped

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NEW ORDER MAY AWAIT CONFERENCE

AUSTIN, Tex., Nov. 30.—Governor Ross S. Sterling tonight revoked a military order issued earlier in the day reducing East Texas oil production from 125 bbls. per well, per day, to 110 bbls. per well, per day. The order was to have become effective on December 2.

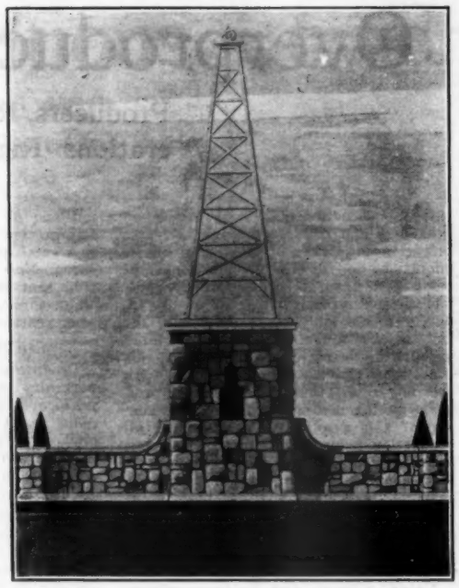
No official explanation of Governor Sterling's decision to revoke the order was given out, but it was assumed at the capitol that after an exchange of statements between the governor of Texas and the chairman of the Oklahoma Corporation Commission and the Kansas Public Service Commission he decided to hold up the order pending a conference with Chairman Thurman Hill of the Kansas commission and a representative of the Oklahoma commission, on the question of a three-state production pact.

Governor Sterling's order and its revocation were issued under the military regulations and the oil and gas division of the State Railroad Commission was not informed officially as to either.

Site of the Mid-Continent's Discovery Oil Well, Now a Barnyard, to Be Preserved

* * * * * *

By Thomas F. Smiley



Artist's drawing of the memorial to be erected near site of discovery well of Mid-Continent oil fields.

"You'll find what's left of the old well just at the eastern limits of Neodesha, at the end of the Verdigris River bridge as you enter the town," explained Tom Galey, oil and gas operator of Independence, Kans., and himself a writer and a tireless collector of historical data. "You can't miss it," he went on. "It's right behind the big barn that stands at the west end of the bridge."

Mr. Galey was giving directions for finding the site of the No. 1 Norman, discovery well of the Mid-Continent oil fields, but he was describing things as he last had seen them. A drive to Neodesha, Kans., in pursuance of his directions followed.

There was the barn all right, the first and biggest object in sight as you cross the bridge at the edge of the town. But the well, where was that?

"Just a foot or so of drivepipe sticking up out of the ground," Mr. Galey had said. A survey revealed no drivepipe anywhere. The small enclosure back of the barn was occupied by a half dozen cows and a bull. A walk about the barnyard under the baleful eye of the bull was fruitless. Examination of the ground outside the fence and along the steep bank of the river yielded nothing either. It began to look as though the hunt might as well be abandoned when a resident of the neighborhood appeared. Did he know anything about an old oil well near there?

"Yes, sir; right between those two posts back of the barn there."

Must Dig If You Want to See It

The posts indicated had been set in the ground about three feet apart. There was no sign of a drivepipe. Further questioning brought out the fact that as barnyard accumulations had risen slowly around all that remained of the well which marked the beginning of Mid-Continent oil developments the posts had been set up to prevent complete obliteration.

A. S. Hopkins, president of the Standard Oil Co. (Kansas), was seen in his office in Neodesha and he told of plans which the Rotary Club of Neodesha is making for preservation of the well site and the erection of a memorial. The No. 1 Norman, drilled by the late William M. Mills in 1892, ranks as second only in importance to the Drake well, for it was the first well west of the Mississippi and east of California to yield oil in commercial quantity, and it was the forerunner of all that exploratory work which produced the amazing oil fields of the Mid-Continent territory.

Financial difficulties experienced by Colonel Drake in drilling his epochal well on Oil Creek in Pennsylvania were paralleled in many respects by those which beset Mr. Mills, pioneer of the western fields.

* * * * * * * * * * * *

The memorial project is in the hands of a committee consisting of Mr. Hopkins, chairman; C. A. McCullough, vice president of the Neodesha National Bank, and Howard Beegle, independent oil producer of Neodesha. The memorial itself, designed by A. M. Burton, petroleum engineer for the Standard of Kansas, and Tom Hopkins, assistant to Mr. Burton, will be in the form of a tower consisting of an aluminum oil derrick 30 feet high, resting on an 18-foot base made of rough native limestone. A concrete wall 6 feet high will surround this tower.

In Plain Sight Night and Day

The small triangular plot of ground on which the old well was drilled is just outside the city limits and abuts the present National Highway No. 75. Since construction work now under way will change the route of the highway, it is planned to set a simple marker at the well and to erect the monument in the city proper, probably near First and Main Streets, where it will stand as a permanent reminder of pioneer oil days to the passing motorist. At night floodlights will make it even more impressive.

A bronze tablet bearing a concise history of the well will be set in the face of the limestone base of the tower. Two bronze cabinets built into the concrete wall will contain records and relics connected with the No. 1 Norman. The ancient piece of drivepipe will be cleared of the barnyard muck that now hides it from view and a protective works will be built around it.

It is the intention of the arrangement committee, according to Mr. Hopkins, to have leading oil men of the country take part in impressive dedication exercises upon completion of the memorial.

The "oil country" meant Pennsylvania, New York, Ohio and West Virginia when Mr. Mills began prospecting in Kansas in 1884. California for about eight years had been producing enough oil to receive mention in government statistics, but California was far away and nobody suspected the splendor of its petroleum riches, so that state had not yet stirred the imagination of eastern prospectors.

Born on a farm in Clarion County, Pennsylvania, in 1851, Mr. Mills grew up in the oil fields of that state and he went to work in them as soon as his school days were over. Eventually he was operating for himself in Pennsylvania and New York. Besides trying to capture the elusive underground wealth itself he challenged fortune in that other glittering game of chance, the oil exchange, where men sought to outguess each other on the rise and fall of crude prices.

Then Came Black Friday

Black Friday fell. On that day of ruin, May 16, 1884, W. M. Mills emerged from the Bradford, Pa., oil exchange wrecked financially. Without a dollar of his own and accompanied by Mrs. Mills he struck out for Kansas, where a few adventurous spirits were beginning to affirm their belief that oil would be found.

For the next two years the penniless but unconquered man, with Mrs. Mills sitting beside him in their horse-drawn buggy, drove from one place to another in Kansas, searching for convincing indications of oil. The two lived with extreme frugality on money loaned by friends in the East. Mr. Mills was impressed by the mounds in the Cherryvale district as favorable for oil deposits. He was about to begin obtaining leases when Mrs. Mills chanced to read in a Kansas City newspaper an item about a gas well having been brought in near Paola, Miami County, on the Abraham Westfall farm. This was the first commercial gas well in Kansas. Mr. Mills dropped his plans for drilling in Cherryvale and

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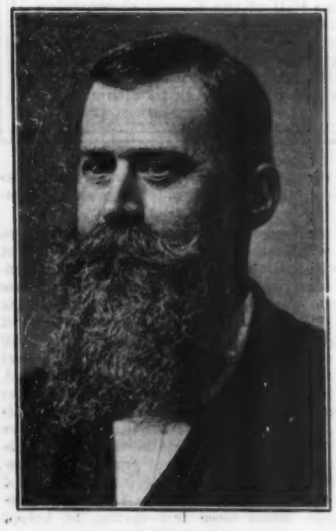
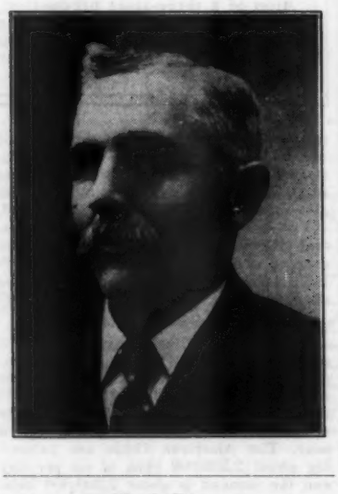


W. M. Mills



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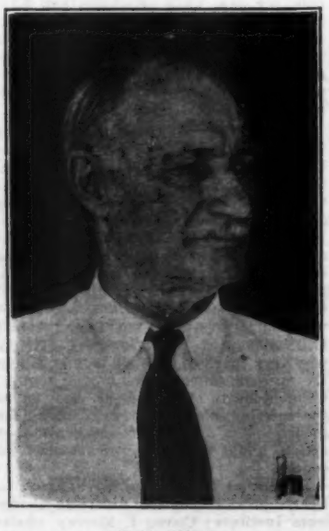
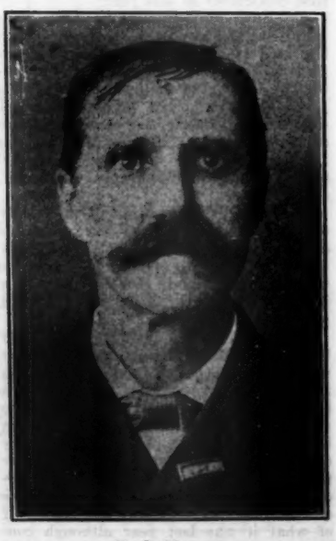


C. L. Bloom



T. J. Norman

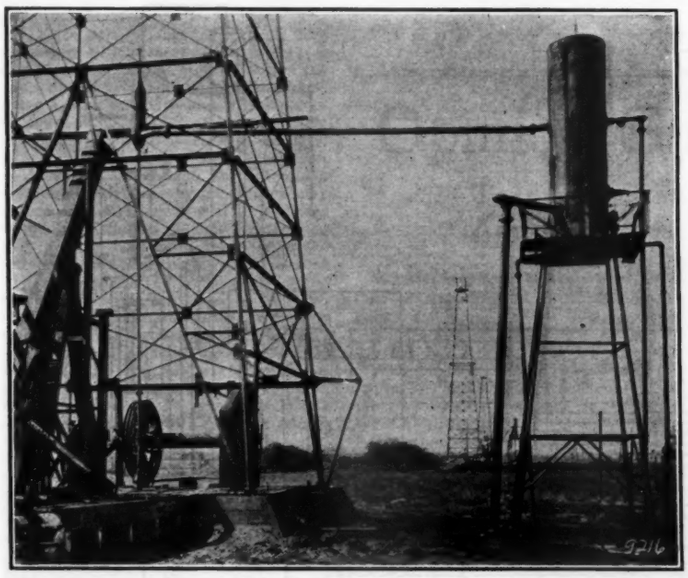
Trend of Production in Oklahoma Pools

Water Situation in Oklahoma City and Seminole Areas Indicates That Much New Equipment Will Be Needed to Secure Oil

By L. G. E. Bignell
Petroleum Engineering Editor

With the taking of new potentials of the wells in Oklahoma City and Seminole area pools recently there has been developed the fact that many of these wells will not make as much oil as formerly assumed possible. This is only natural when normal depletion is taken into consideration and that a majority of Oklahoma City wells are off about 14.4 per cent from their former estimated potential capacity is not surprising. This decline does not apply to individual wells for it was found, in some instances, that the wells actually gauged more oil on the last test than they have previously been reported to be capable of producing.

The principal thing that has happened in the Oklahoma City Field is the ruling of the Oklahoma Corporation Commission that the field should be produced in zones. The zones are defined from east to west as Fault line, Arbuckle lime, Simpson formation and Wilcox sand and the wells in each of these zones will be produced upon different allowables based largely upon the percentage of water being made from the various producing horizons.



Four-inch tubing equipped so that swab can be run in it to start well flowing, Skelly Oil Co., Oklahoma City Field.

It has been known for a long time the Arbuckle lime formation was flooded with water under a high hydrostatic head and because of the early practice of casing high in wells drilled in that portion of the field much of this water has forced its way up through the open hole below the casing and found outlet to other parts of the field through porous sand formations encountered in the base of the Pennsylvanian and in this way has flooded portions of the Simpson formation lying to the west of the Arbuckle lime area.

It was proposed some months ago by Wirt Franklin that the small amount of oil remaining in the Arbuckle wells be secured as quickly as possible and then all wells in that area be cemented back well into the Pennsylvanian formation to do all that is possible to shut off this water movement. The proposal did not receive the sanction of the corporation commission then, but the general idea is being carried out in the new order.

Water Movement Steady

For a long time it has been known that water under pressures estimated as high as 2,500 pounds per square inch has been moving through the Simpson formation, the producing member that lies on the west, south and north flanks of the old Arbuckle limestone hill. There are several distinct sand strata in this Simpson formation from which oil and gas is being produced such as the Johnson and School Land sands with lime stratas between and below them. One of these lime formations known as the Stampler lies directly upon the Arbuckle and beneath the Johnson sand in part of the field and as this is not of equal thickness in all places there are places where the Johnson sand lies very close to the Arbuckle formation.

Where wells were drilled too deep in the Simpson zone they have bottomed so close to the Arbuckle limestone that water made its way across from that formation and up into the porous streak in the Johnson and then moved rather freely through the Johnson sand. It is reported that this movement at one time was taking in about one well every 4½ days and it is now reported that some water is found in all Simpson wells.

Plugging back in the Johnson sand has had its effect in cutting off some of this water in some wells while in others it was necessary to plug back practically all of the Johnson sand before water encroachment could be controlled. Where this condition existed the wells were forced to produce from upper sands in the Simpson formation if they existed in the well and consequently the size of the well has been materially reduced.

Water in Wilcox

Water has been encountered in the Wilcox sand lying still further down the flanks of the old Arbuckle limestone hill and in the south end of the field this movement of water through the Wilcox has been quite steady and a good portion of that area is now making water from the Wilcox. It is true that much of this water is coming from wells that were drilled into water when first completed but edge water is moving in as oil is removed.

On the west edge of the field in Section 10, near the city limits of Oklahoma City one well drilled into water in the Wilcox formation. This is explained by assuming that the Wilcox sand in that particular area lies directly over a small Arbuckle lime structure or knoll that is resting upon the north flank of a nose of Arbuckle lime that extends to the west from the main body of the old limestone hill. The well is located on the west flank of this small Arbuckle lime knoll and the bottom water from the Wilcox, which is known to exist in the west portion of that formation, has been entrapped on that side of the small limestone formation and therefore the well encountered it when only 35 feet in the Wilcox sand pay.

This is a local condition and not encountered in other wells and as this particular well is being produced under back pressure and through choke it is hoped that the water movement can be controlled and will not extend to other wells in that part of the field in the near future.

Tubing and Chokes Recommended

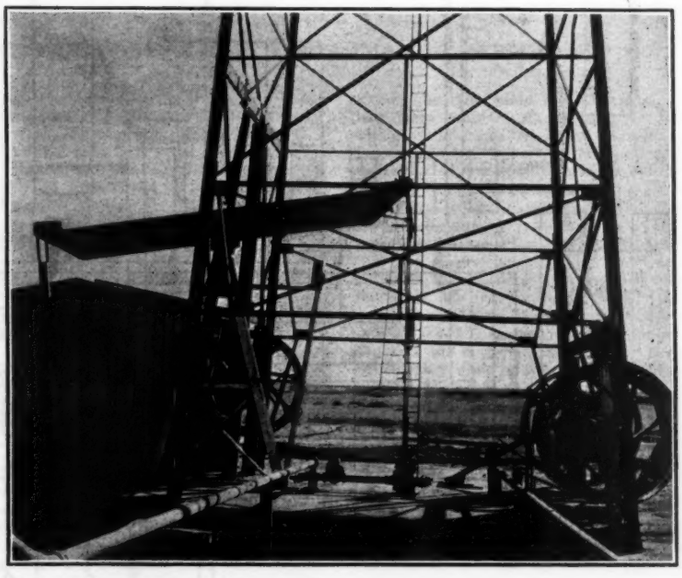
Some operators are now recommending that tubing be run in all wells and that they be produced through chokes with the bottom hole chokes and top hole beans have been tried with varying success.

Both types of choking device have their advocates and their use will depend largely upon individual well conditions. It is agreed by all operators that some type of control device is necessary if bottom hole water movement is to be regulated and it now is generally agreed that tubing of the wells in all zones is essential.

There has been a notable decrease in the volume of gas in the Simpson formation since the first of this year due largely to underground movement and equalization of pressures following large production of gas during the early life of the field. This loss of potential energy that would have moved much more oil to the wells is regretted but now that the energy contained in the gas has been dissipated other methods must be employed to secure the remaining oil. The decrease in gas volume is reported as high as 75 per cent in some wells.

The wells can be produced by gas lift and many of them have been so produced in the Arbuckle and Simpson areas. In the Arbuckle lime area it was found that the water level was high and to get the oil it was necessary to produce an excessive amount of water and as it is a difficult problem to find ways of disposing of salt water in that field it was found that many wells had to be shut down even though a considerable amount of additional oil might have been secured.

In the past this has applied to the Arbuckle lime wells only but if the water drive in the Simpson formation continues it would seem only logical to assume that many wells there will be plugged back and converted into gas wells because of inability to handle excessive salt water produced with the oil.



Continental Oil Co. well at south end of Oklahoma City Field on beam.

idea in mind that under such conditions there will be placed upon the water movement a controlling factor. This might better have been done early in the life of the field and if it had been put into practice then instead of flowing them intermittently through the strings of 7 and 9-inch casing it is now believed that much more oil would be ultimately recovered and the gas energy common to this field would have been conserved.

Many wells in the Arbuckle lime and Simpson formation have been tubed for some time and the Skelly Oil Co. has quite recently completed the running of 4-inch tubing in all of its wells in the Oklahoma City Field. Other wells have been tubed with 2½-inch strings and both

Pumping Equipment Needed

While there is no marked increase in the immediate demand for pumping equipment for Oklahoma City Field it is known that all operators are now giving serious consideration to the problem of securing additional oil from their wells as the field grows older. It is now a good time for manufacturers to interest them in equipment that will show low lifting costs and

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Unique Stabilization Unit at Refinery

Installation at East Chicago Takes Care of Pressure Distillate Rectification and Vapors From Plant Operation

By Robert C. Conine
Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

Refinery construction programs involving investments ranging from $500,000 to nearly $10,000,000 are the answers of the industry in Chicago district to the challenge of "hard times" and the growing insistence that motor fuel other than the premium grade must further minimize or entirely eliminate three of the motorists' troubles—engine knock, vapor lock and slow starting. These refiners are expanding the facilities of their plants and effecting means for extracting every cent of profit and saving as well as keeping pace with the trend toward improved products.

One of the most interesting installations is that of a vapor recovery and stabilizer plant just completed at the refinery in East Chicago, Ind., of the Bartles-Maguire Oil Co. (Wadhams Oil Corp.) by the Jackson Engineering Corp. The arrangement at the refinery is such that the pressure distillate and the gasoline extracted from the cracking unit and refinery vapors move in an entirely closed system from source to treating plant outlet. The installation, which includes an absorption tower, a fractionating column (with preheater and reheater utilizing live steam), a rectifying or debutanizer column, and a stabilizer tower, all interconnected, is intended to reduce losses to a minimum and to promote the production of better antiknock gasoline which will have a Reid vapor pressure of seven to eight pounds in summer and nine to 10 pounds in winter.

A composite sample of vapors from the liquid phase and vapor phase cracking units at this refinery gives the following analysis: Methane, 42.6 per cent; ethane, 20.9 per cent; propane, 14.37 per cent; allylene, 5.25 per cent; butane, 9.53 per cent; pentane, 5.29 per cent; hexane and heavier, 2.2 per cent. Some ethylene, propylene, etc., are also present. Total gallons per thousand cubic feet, 5.79. At present there are 3,000,000 cubic feet of vapors available daily.

Analysis of the pressure distillate charged to the debutanizing tower is as follows: Ethane, 2.1 per cent; propane, 4.9 per cent; butane, 10.34 per cent; pentane, 13.06 per cent; hexane and heavier, 69.6 per cent. The tower is designed to give a butane extraction of 60 per cent. In debutanizing a cut between the pentane and hexane, fractions of about 20 per cent are taken overhead to the accumulator. Controlling factors are gum, color and odor.

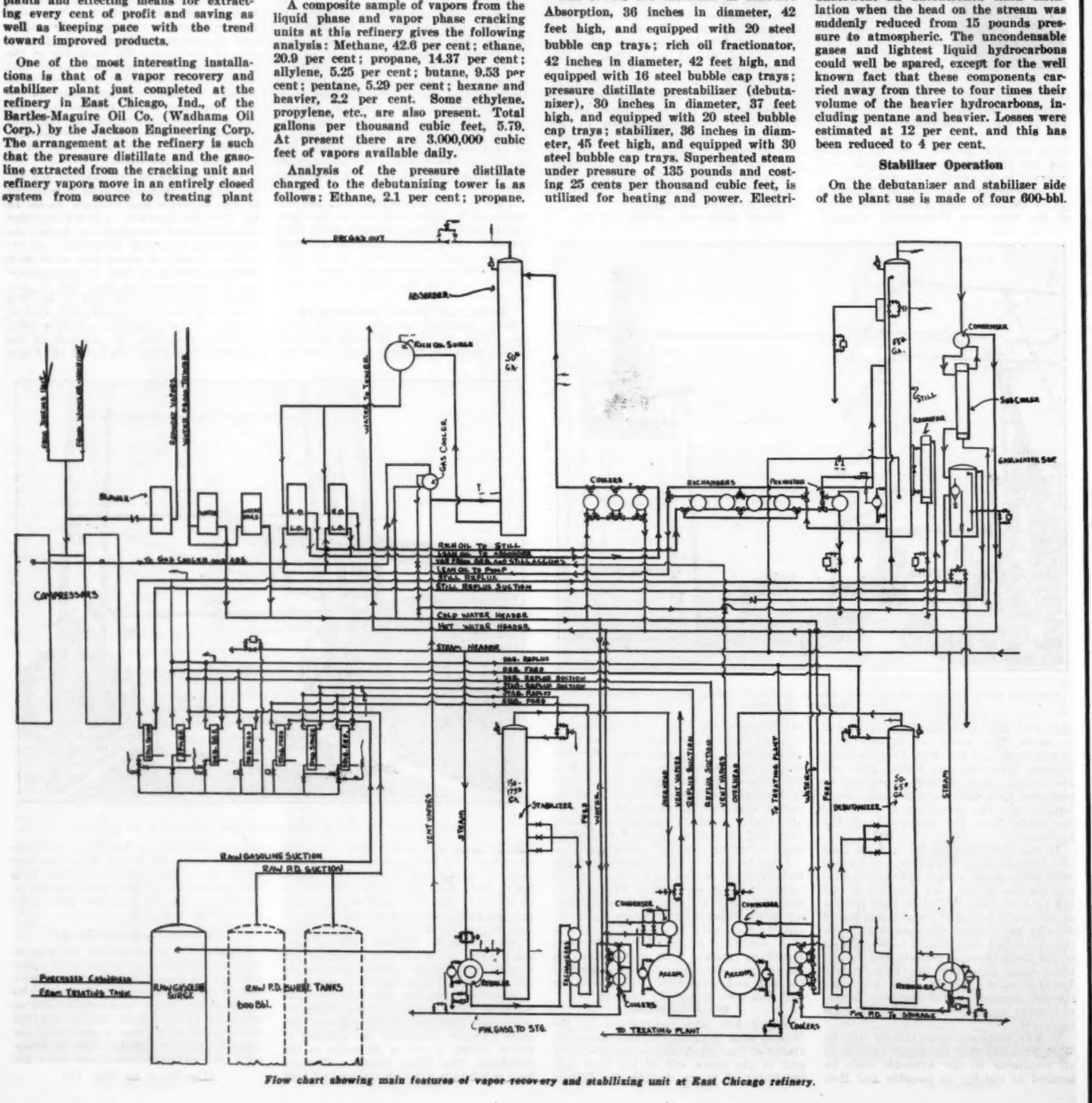
Description of Towers

The towers are described as follows: Absorption, 36 inches in diameter, 42 feet high, and equipped with 20 steel bubble cap trays; rich oil fractionator, 42 inches in diameter, 42 feet high, and equipped with 16 steel bubble cap trays; pressure distillate prestabilizer (debutanizer), 30 inches in diameter, 37 feet high, and equipped with 20 steel bubble cap trays; stabilizer, 36 inches in diameter, 45 feet high, and equipped with 30 steel bubble cap trays. Superheated steam under pressure of 135 pounds and costing 25 cents per thousand cubic feet, is utilized for heating and power. Electrical installations in the plant use 720 kilowatts daily at a net cost of 1 cent per kilowatt. Vent arrangements for noncondensable gases are such that the gas streams may be cut back into the absorption tower or directly into the residue gas line to be utilized elsewhere in the refinery or sold.

Before the present "closed system" was put into operation, the pressure distillate underwent an uncontrolled flash distillation when the head on the stream was suddenly reduced from 15 pounds pressure to atmospheric. The uncondensable gases and lightest liquid hydrocarbons could well be spared, except for the well known fact that these components carried away from three to four times their volume of the heavier hydrocarbons, including pentane and heavier. Losses were estimated at 12 per cent, and this has been reduced to 4 per cent.

Stabilizer Operation

On the debutanizer and stabilizer side of the plant use is made of four 600-bbl.



Flow chart showing main features of vapor recovery and stabilizing unit at East Chicago refinery.

capacity surge tanks (one is omitted in the accompanying diagram). Serving as working tanks these act to minimize the difficulties attending the starting up and shutting down of the plant. In the flow diagram shown here pressure gauges, thermocouples and other control and recording instruments are merely indicated. Temperatures at the tops of all the columns are regulated by controlling the stream from the reflux pumps. Liquid level controls operate on the reboilers, preheaters, accumulators and the bases of towers, as described later.

The cracking plant vapors reach the low side of a Clark Brothers two-stage gas-driven reciprocating compressor under a head of 20 pounds and are stepped up to buck a constant pressure of 50 pounds in the absorption tower. The refinery vapors, from the straightrun gasoline storage and crude oil storage tanks, are brought to the compressor by means of a blower. One of the compressors shown in the diagram is a standby. The temperature of the gas is lowered in a water gas cooler before it enters the tower about 4 feet from the ground. A ratio of 98,000 gallons of absorption oil to 2,000,000 cubic feet of gas is maintained. The absorption oil is made at the refinery and is a special close range distillate with an initial of 420° and an endpoint of 525°.

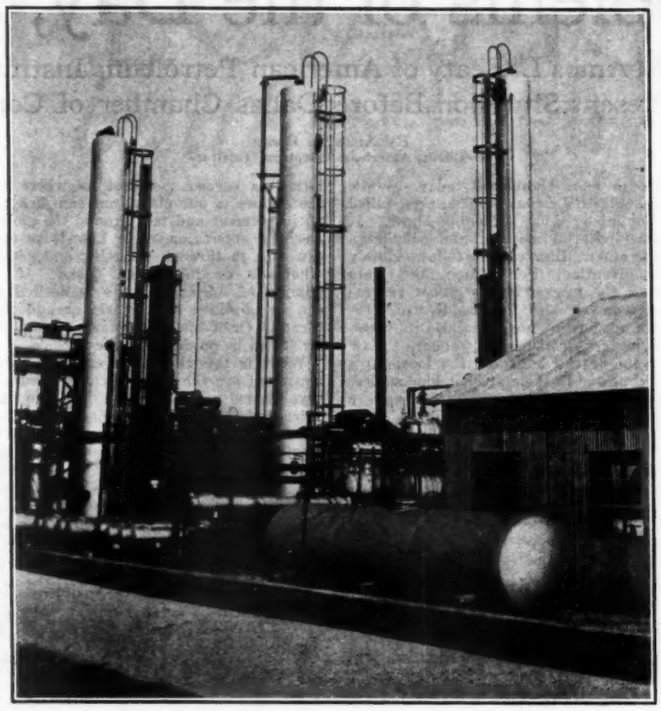
The rich oil and lean oil pump, and standby, is an electrically driven 6-inch suction pump of 40 horsepower, and capable of 1,750 r.p.m. The rich oil is drawn into a surge accumulator where an equalizing line back to the tower (and which may be cut into the residue gas line to prevent overloading the absorber) prevents further progress of entrained gases and highly volatile fractions. The rich oil is pumped through lean oil heat exchangers to a preheater. The preheater may be bypassed. The rich oil enters the fractionating column about two-thirds under a head of 100 pounds. Pressure in the tower is maintained at approximately 55 pounds gauge. The still is equipped with steam coils in the base. A reheater on the side of the column, through which the rich oil circulates by convection, may be cut in. Temperature of the charge to the fractionating column is raised to 350° F. The lean oil is taken from the bottom of the tower through the heat exchangers where the temperature of the incoming rich oil is raised to 200° F. The absorption gasoline vapors pass overhead through a condenser and subcooler and then to a gasoline-water separator. A liquid level control on the separator regulates the stream to the treating plant. The remainder of the stream from the separator is taken by a reflux pump where it enters at 55 pounds pressure and is sent back into the still head at a pressure of 75 pounds and atmospheric temperature.

Specifications of Products

The product from the fractionating column has an endpoint of 375°, and a Reid vapor pressure of around 30 pounds. The vapor pressure may be lowered to 22 pounds by regulating the temperatures in the column. The vapors scrubbed in the absorption tower have a heating value of 1,600 B.t.u., and the dry gas passing overhead has a heating value of 1,200 B.t.u. The output of the still is 7,200 gallons daily of 84 to 86 gravity gasoline.

The absorption gasoline passes to the stabilizer from a 600-bbl. capacity surge tank, after doctor treating, under pressure of from 150 pounds to 175 pounds gauge and through heat exchangers where the temperature of the product is raised to 275° F. The stabilizer bottoms pass through a reboiler on leaving the tower and the vaporized portion is returned near the bottom of the tower. Bottoms from the reboiler pass through the heat exchangers and a series of coolers on the way to storage as finished gasoline. The overhead cut passes into the stabilizer accumulator where a stream is picked up by the stabilizer reflux pump and directed to the tower reflux condenser.

Pressure distillate to the debutanizer column is taken from the surge tanks under pressure of 75 pounds to offset the 50 to 65 pounds pressure in the tower. The pressure distillate enters the heat exchangers at a temperature of approximately 105° F. and this is increased to 300° F. before the material enters the tower. A reboiler heats the charge to the tower where 60 per cent of the butane is removed and passed overhead to the accumulator through a condenser. Vapors in the accumulator pass on to the absorption tower. Part of the liquid product in the accumulator is pumped back into the top of the tower and the remainder passes to the treating plant for a doctor treat and then to the stabilizer surge tank. The overhead product has a gravity of 68°, initial of 90°, and a 200° endpoint. The octane rating is between 87 and 90. The bottoms have a gravity of 46°, initial of 160°, and 410° endpoint. The octane rating is 70 or better.



View of vapor recovery and stabilizer plant at East Chicago, Ind., refinery of the Bartles-Maguire Oil Co. (Wadhams Oil Co.).

The pumps used are Dean Brothers close clearance simplex steam pumps taking steam through reducing valves from the main which carriers 100 pounds pressure. The stabilizer spare is interconnected with the feed and reflux pumps and may assist either. The debutanizer spare is interconnected with debutanizer reflux or still reflux pumps. Types of pumps are: Still reflux, 6x5x12; debutanizer reflux, 6x3.75x12; stabilizer reflux, 8x4.5x12; stabilizer spare, 8x4.5x12; stabilizer feed, 8x4.5x12; debutanizer feed, 7x6x12; debutanizer spare, 6x5x12.

Natural gasoline is purchased to blend with the low gravity, comparatively high endpoint product of the debutanizer. This natural gasoline is stabilized at this plant and has an octane rating of 70 at least. This blend, without addition of material taken overhead from the debutanizer, gives a finished gasoline of 70 octane number. By adding portions of the overhead product to the finished gasoline the octane rating is raised proportionately. The straightrun gasoline blended has an octane rating of slightly better than 52.

Opinion Sustaining California Law

Text of Decision Delivered by Chief Justice Hughes in the Appeal Against Enforcement of Gas Conservation Statute

WASHINGTON, D. C., Nov. 28.—Chief Justice Charles Evans Hughes delivered the opinion of the Supreme Court (reported briefly in The Oil and Gas Journal last week) upholding the jurisdiction of the California courts on the appeal of the Bandini Petroleum Co. and others involving the constitutionality of the California Gas Conservation Act.

The appellants are producers of oil and gas from their respective wells in the Santa Fe Springs oil fields in Los Angeles County, Calif. In September, 1929, the State, acting through its director of Natural Resources, brought suit in the Supreme Court of the state against the appellants and others, seeking to enjoin an alleged unreasonable waste of natural gas in that field.

The authority for the suit was found in the Oil and Gas Conservation Act of California, which prohibits "the unreasonable waste of natural gas" and authorizes suit by the director of natural resources to enforce the prohibition.

The Superior Court granted a preliminary injunction after a hearing upon the pleadings, affidavits, oral testimony and documents submitted. The court recited in its order that there appeared to be an unreasonable waste of natural gas in the Santa Fe Springs oil field, and that an injunction was necessary in order "to preserve the subject matter of the action to abide the decree of the court at the conclusion of the trial." The court restricted the average daily production of "net formation gas" from "any lease or other property unit" to the amount shown for each operator in an accompanying schedule.

The court also directed each defendant to file reports showing the daily production of gas and oil, and the order was without prejudice to the right of any of the parties to move on five days' notice for modification of the injunction. The court later modified the order. Appellants state that the order curtailed their production of gas from 57,120,000 to 27,187,000 feet a day.

Thereupon the appellants sought a writ of prohibition from the District Court of Appeal, Second Appellate District of the state, restraining the Superior Court and the respondent, William Hazlett, as one of its judges, from enforcing the injunction order. The jurisdiction of the Superior Court was attacked upon the ground of the invalidity of the statute invoked.

Definition of Waste

The appellants contended, in substance, that the statute violated the due process clause of the Fourteenth Amendment in that it afforded no certain or definite standard as to what constituted "waste" or "unreasonable waste" and unlawfully delegated power to the Superior Court to legislate upon that subject; in that, upon the facts and as applied against the appellants, the statute prohibited them "from utilizing such amount of natural gas produced from their respective wells" as was "reasonably necessary to produce oil therefrom in quantities not exceeding a reasonable proportion to the amount of oil produced from the same well"; and in that the statute required appellants to curtail their production of oil and gas "for the purpose of conserving such natural gas for the benefit of the general public" without eminent domain proceedings and without just compensation, and was so arbitrary and oppressive that it was in excess of the power of the State.

By reference to their pleadings in the injunction suit, the appellants also assailed, under the due process clause, the provision of the statute as to what should constitute prima facie evidence of unreasonable waste, and the appellants further insisted that the statute as enforced against them impaired the obligation of their lease contracts in violation of the contract clause of the federal Constitution and that they were denied the equal protection of the laws as guaranteed by the Fourteenth Amendment.

Question of Jurisdiction

The respondents (appellees here) demurred to the petition, and the District Court of Appeal, entertaining and overruling the contentions of the appellants under the due process clause, denied the writ of prohibition. The appellants then applied for a hearing in the Supreme Court of the state and, this having been denied, they seek in this court a review of the judgment of the District Court of Appeal.

This court has jurisdiction. The proceeding for a writ of prohibition is a distinct suit, and the judgment finally disposing of it is a final judgment within the meaning of Section 237(a) of the Judicial Code.

That judgment, however, merely dealt with the jurisdiction of the Superior Court of the suit for injunction, and the only question before us is whether the District Court of Appeal erred in deciding the federal questions as to the validity of the statute upon which that jurisdiction was based. Moreover, with all questions of fact, or with questions of law, which would appropriately be raised upon the facts adduced in the trial of the case in the Superior Court, as a court competent to entertain the suit, we are not concerned on this appeal.

The appellants annexed to their petition in the prohibition proceeding, and made a part of it, the pleadings in the injunction suit and the affidavits presented upon the hearing of the application for preliminary injunction. But they could not in that manner, or by their characterization of the evidence thus ad-

(Continued on Page 30)

Some Problems of the Day, and In Oil

President Amos L. Beaty of American Petroleum Institute Discusses Present Situation Before Dallas Chamber of Commerce

By Amos L. Beaty
President, American Petroleum Institute*

The ancients feared famine; we fear overproduction. This change coincides with the progress of the race. To be sure, there are still floods and famine, but being local and temporary they present only passing problems. The benevolent attitude of mankind and the processes of relief are sufficient against the day. We are in the machine age when a part of the world can supply the entire world and be idle part of the time. Numerous types of energy are at hand and new types are constantly appearing. Transportation facilities are such that production in any part of the world is available to the entire world.

Invention and Obsolescence

A few years ago industrialists were startled by a thesis entitled "What Price Progress?" The facts then pointed out are even more significant today. While science has fed commerce it has not failed to administer some sickening blows. It has held gifts in one hand and a bludgeon in the other. Obsolescence follows closely upon invention. For instance, the steam engine, the marvel of the recent generation, seems headed for the discard. Internal combustion has demanded its place, and we are justified in wondering how long the tracks built for the locomotive will continue in their present importance.

Pullman developed an idea of comfort in travel whereby those desiring to cross the continent or to make a journey which cannot be completed in daylight may have comfort and repose in travel. Now the speed-minded traveler crosses the continent in daylight and slumbers where he will. He races through the air at three times the speed of the fastest limited train. In communication there is no isolation or barrier. Almost anywhere on the surface of our planet one can pick up an instrument and talk around the globe. Desiring entertainment or knowledge one can tune in through the ether and get it wholesale or in broken doses. If a glimpse of African jungles is desired it can be obtained at a movie around the corner. Or if one is too lazy to go that far it can be produced at the fireside.

What is this that is going on? How important are the rules of conduct which have guided us in the past? Is the old order archaic, or can we cling to it still? It strikes me that we must take new bearings or else become the victims of our own enterprise.

This Business Depression

The length and violence of the present business depression are but sequences of twentieth century progress. It is progress after all, though to some of us it may not seem so. Statisticians speak of cycles. We are told that they are inevitable, and the truth of this theory must be admitted. They are just as inevitable as the high and low of the tide. Their absence would be proof of stagnation and commercial decay. And when the swing is high and wide we obtain amazing vistas at the bottom.

I am not an expert in finance and cannot tell you when the depression will end. Nor can I tell you when a slump in it will occur. In the past we have had money panics, inventory panics and war panics. Finally we have been introduced to a prosperity panic, which has proved both deep and wide. It is a long-lived panic from overproduction. The trouble started here and has extended to the entire world. The financial systems of important nations, owing to the strain of

(Continued on Page 100)

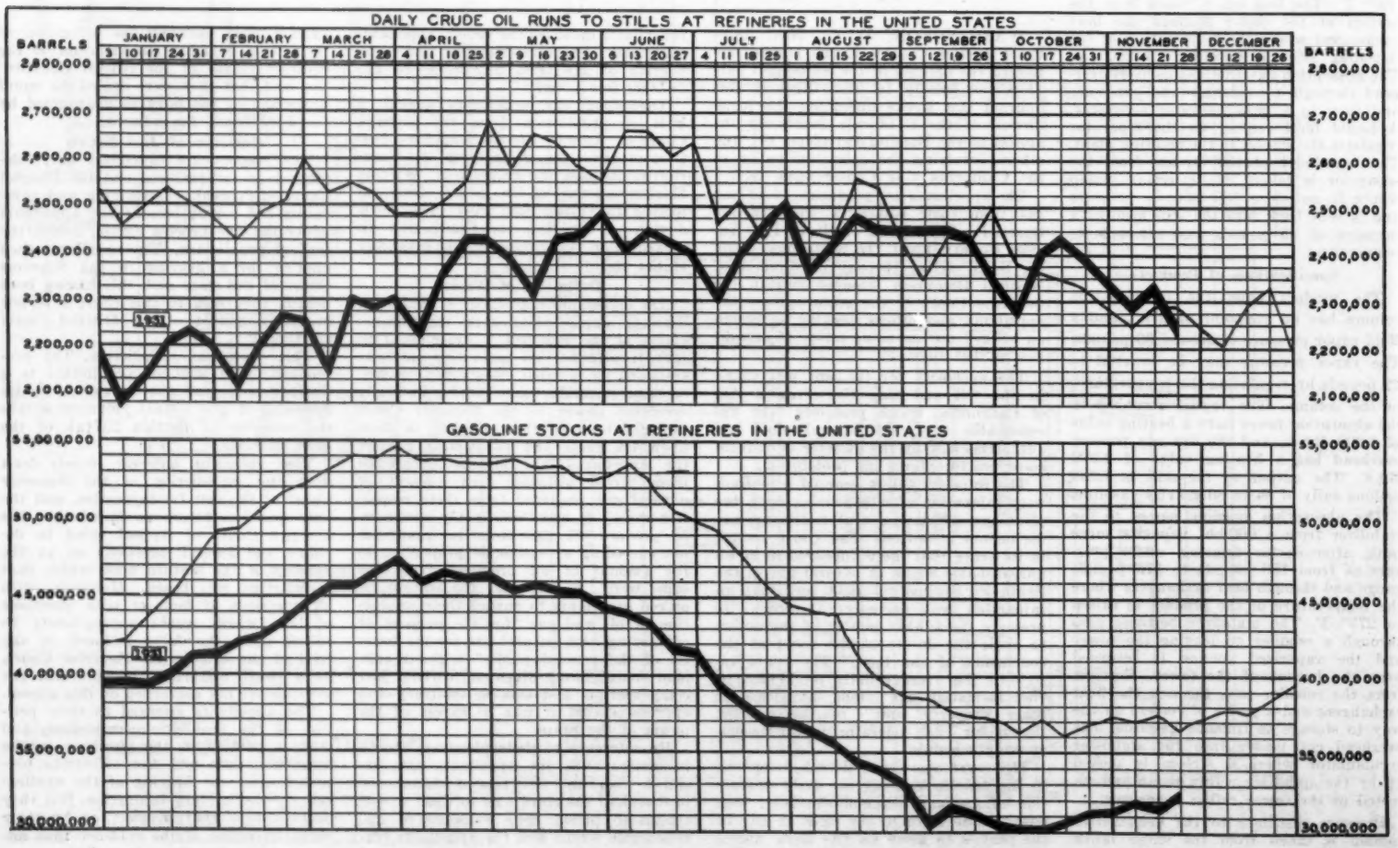
*Before Dallas, Tex., Chamber of Commerce, December 1, 1931.

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to still, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending November 28:

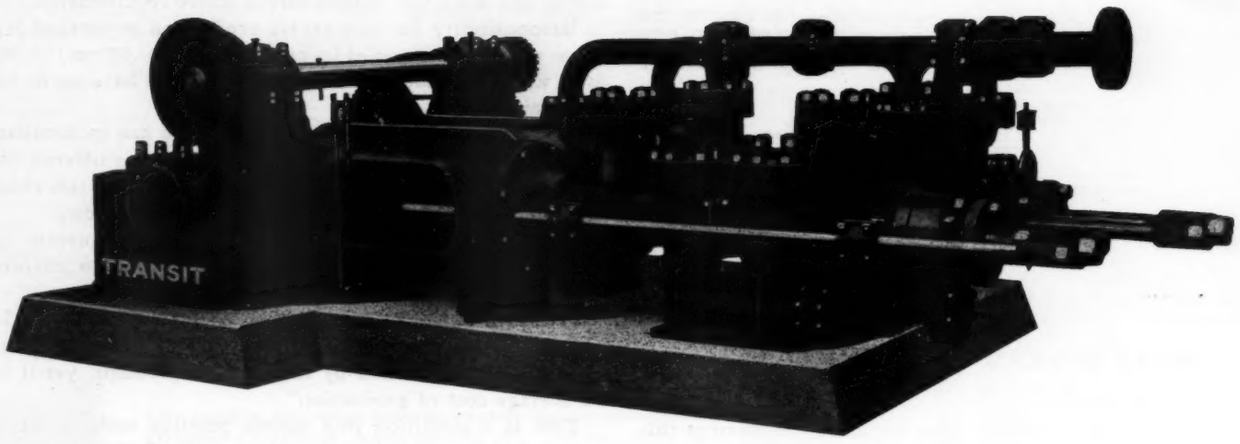
	Week ending November 28, 1931				Week Ending November 21				Week ending November 29, 1930			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	438,000	4,231,000	10,202,000	100.0	404,900	4,127,000	10,209,000	100.0	453,100	5,563,000	11,182,000
Appalachian	90.8	99,500	1,204,000	1,664,000	91.8	99,900	1,201,000	1,684,000	93.8	74,300	778,000	1,025,000
Indiana, Illinois, Kentucky	98.9	319,000	3,437,000	5,852,000	98.9	311,600	3,232,000	5,776,000	97.5	260,600	4,255,000	3,978,000
Oklahoma, Kansas, Missouri	89.6	235,400	2,828,000	4,790,000	81.6	244,700	2,665,000	4,892,000	89.4	250,900	2,325,000	4,583,000
Texas	91.3	532,400	6,668,000	11,993,000	91.3	567,000	6,504,000	11,838,000	91.9	478,300	6,292,000	11,017,000
Louisiana and Arkansas	98.9	162,700	1,022,000	4,070,000	98 9	159,700	952,000	4,053,000	98.3	146,700	1,295,000	2,261,000
Rocky Mountain	39.4	50,200	1,366,000	898,000	39.4	46,000	1,295,000	810,000	93.1	43,300	1,517,000	1,029,000
California	97.1	455,400	12,919,000	97,069,000	97.1	427,800	12,535,000	97,052,000	98.8	539,100	15,262,000	103,793,000
Total United States	95.2	2,292,600	33,685,000	136,439,000	95.2	2,261,600	32,511,000	136,264,000	95.7	2,246,300	37,287,000	138,868,000
Texas Gulf Coast	99.8	412,600	5,043,000	8,630,000	91.8	425,300	4,964,000	8,504,000	100.0	354,300	5,030,000	8,290,000
Louisiana Gulf Coast	100.0	116,400	876,000	3,264,000	100.0	106,700	827,000	3,264,000	100.0	98,300	1,011,000	1,291,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



*Data for 1931 based on weekly reports of the American Petroleum Institute. Figures for last week not shown in graph but are included in above tables.

A SPECIALIST *built* IN EVERY DETAIL— *to handle its own* TOUGH JOB



PIPE Lines have enough trouble these days without paying too much for pumps, or buying pumps not exactly suited to their work. The Texas Type power pump illustrated above is regarded very highly by many experienced pipe line men because it overcomes so many of the little annoyances found in pumps less adapted to pipe line work.

STRENGTH is there by reason of correct design, and not by a preponderance of unnecessary metal.

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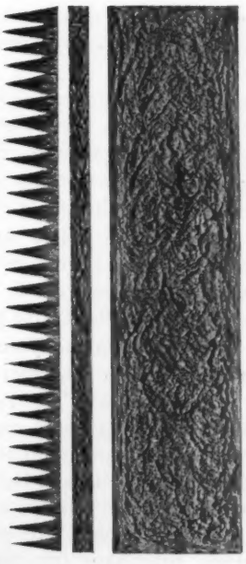

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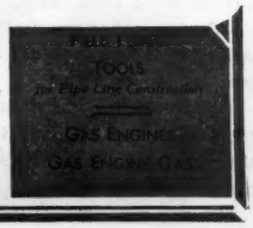

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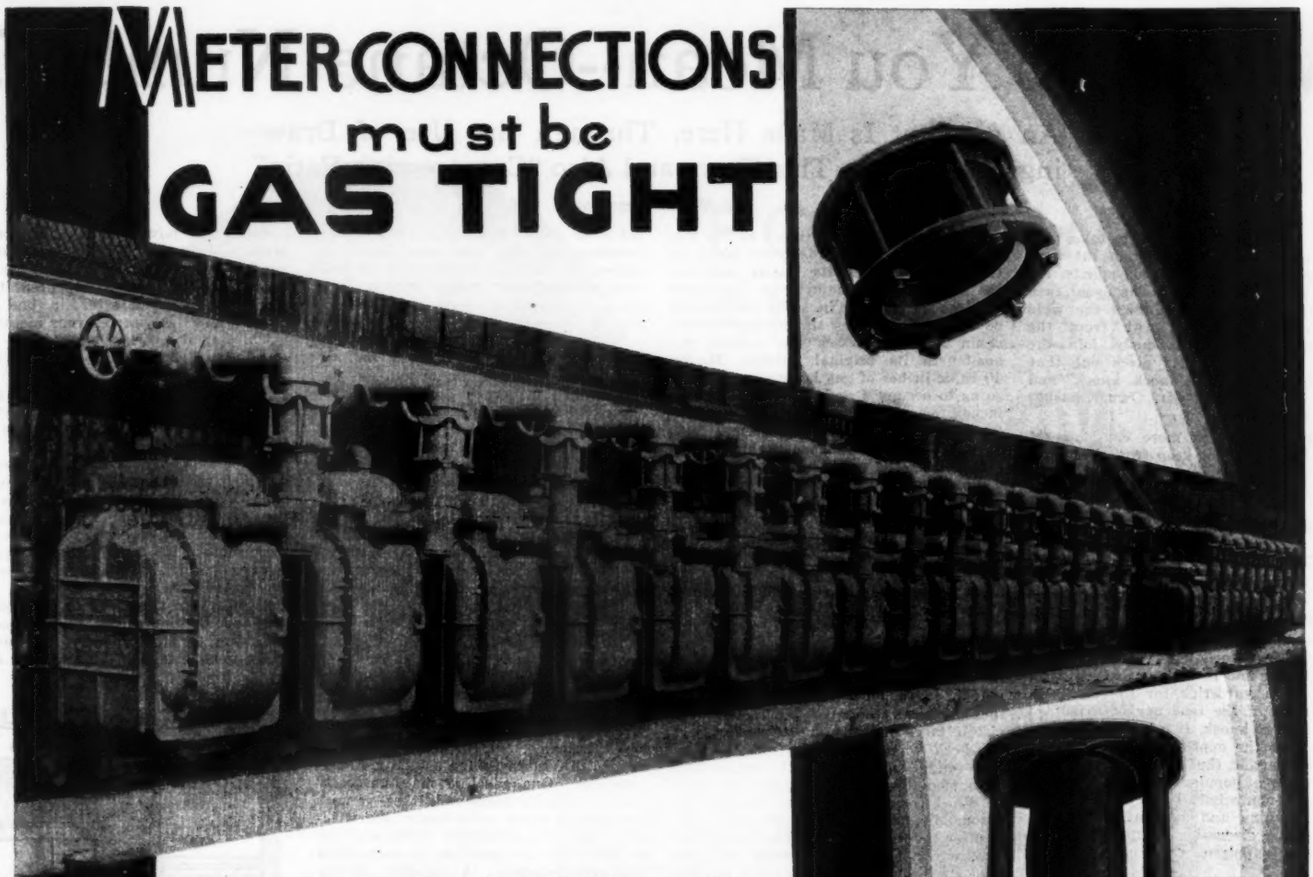

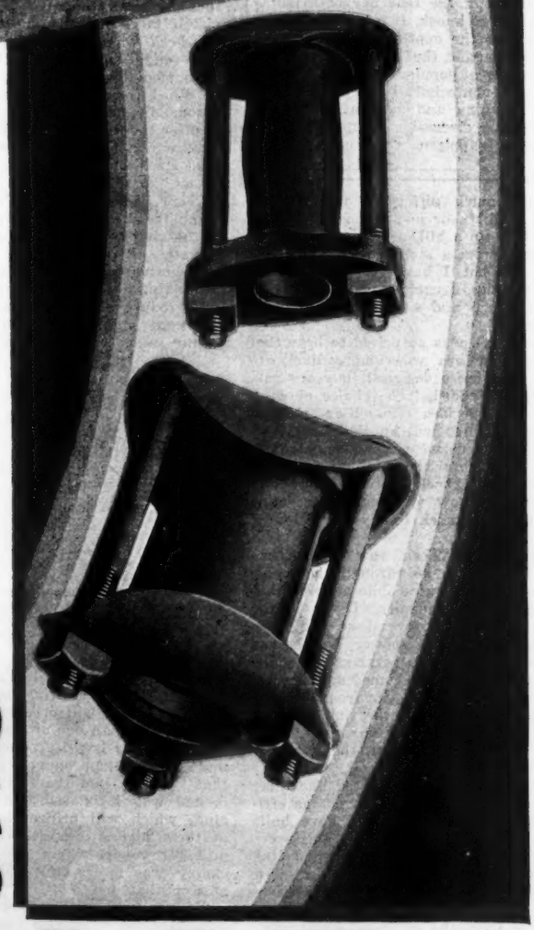

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"What Do You Mean--Octane Number?"

An Attempt Is Made Here, Through the Use of Drawings, to Explain This Term and Also "Compression Ratio"

By W. T. Ziegenhain

Mr. Average Car Owner takes his "Technical" friend home from the football game. They are in good spirits, the home team won. There is the usual rush of cars to "get going" down the wide lane of traffic and away from the stadium. They unconsciously join the race. But the old car gives out that characteristic "knock, knock, knock" and lacks the pep when Mr. Owner pushes down on the gas.

"Tech," who was more conscious of the noise, could not keep from commenting "Your engine is a little dirty, isn't it, A. O.?" The answer came back something like this, "I notice that knock every once in a while and it doesn't seem to make much difference whether the engine is dirty or not. I notice it more when I go up a hill, or when I am moving away from a stop sign. I don't like the sound but I have sort of got used to it. Besides, I can't expect this car to have the pep and silent operation of a new one."

ORIGIN OF TERM

Five years have passed since Dr. Graham Edgar of the Ethyl Gasoline Corp. originated the term "octane number" and suggested it's use as a yardstick for the measurement of the tendency of a motor fuel to knock. It has taken that long for the expression to feel at home outside the laboratory. Now there is a popular demand for a simple, nontechnical explanation of its meaning and application. The following discussion is intended to help in supplying that.

Then A. O. was surprised to hear that the new engines were more likely to knock than those designed in years past and "Tech" added, "The choice of gasoline is what decides as much as anything whether a motor will knock."

A. O. then asked a most logical question. "Why are they building motors that tend to knock more severely and how will I know when I buy gasoline that it won't knock in my car before I try it?"

At this point "Tech" saw that he was going to have to go through the whole story of how the automobile motor manufacturer has gradually lessened the weight of the motor and at the same time has increased its power, how he has effected substantial savings in the amount of gasoline consumed and speeded up acceleration of the car from a starting position but all of the time, placing a new responsibility on the refiner. Then also, "Tech" was going to have to explain "octane number."

"Tech's" explanation started like this: "That engine in your car is not as efficient as one engineers could have built twenty years ago. Similarly, engineers could build a much more efficient engine today than that one if they were assured of being supplied with a suitable gasoline at not too great a cost to the motorist. It is true, the engineer would have certain problems to work out such as keeping the motor free of carbon, cooling the valves, etc., but these probably do not hinder the movement as much as getting a suitable fuel.

Compression Ratio

"The principal means of accomplishing greater efficiency is by increasing what is commonly referred to as the 'compression ratio.' Maybe I can explain the meaning of this term by going through the simple operation of the motor.

"In any motor, gasoline vapor and air are drawn into each cylinder as the piston takes its downward stroke. Then as the piston reaches its lowest position, the inlet valve on the cylinder closes and the gas is trapped in. The momentum of the engine forces the piston upward again and compresses the gas to say one-fourth its original volume. Maybe 40 cubic inches of gas is thus compressed so as to occupy a space of only 10 cubic inches remaining in the head of the motor. Here it is trapped in the small compartment in which the spark plug is located. From the relationship between the volume of the gas before it was compressed and its volume at the time it has been completely compressed and ready to be ignited by the spark, we get the compression ratio. In this case because the cylinder held 40 cubic inches of gas originally and then the gas was compressed to one-fourth its volume, that engine is said to have a compression ratio of 4 to 1.

"With this as a basis you can see that the head of the motor in which the spark plug is located may be made so shallow that practically no space is left when the piston takes its uppermost position. If the head was designed so only half of the original space is left, the engine will be immediately converted into one with an 8-to-1 compression ratio. That is how automobile manufacturers are now able to offer the same engine with an optional compression ratio. They simply vary the head space by putting in a thick or thin gasket."

"Now, it so happens," Tech continued, "that the higher the compression ratio of the motor, the more efficiently it will operate, all other things being equal. Automotive engineers tell us that a motor having a compression ratio of 5 to 1 will produce 14 per cent more power for the same volume of gasoline compared to the same type of motor with a compression ratio of 4 to 1. Taking another case, the engine having a compression ratio of 7 to 1 will produce 16 per cent more power than one of 5 to 1. Also, an engine of 8 to 1 will produce 38 per cent more power than one of 4 to 1. Now that you see what the compression ratio is and why it is desirable to build engines which will utilize the advantages of these higher compression ratios, you probably wonder why a 4-to-1 or a 5-to-1 engine was ever built. Maybe I can answer that too.

"If you will notice these four drawings here, showing the progress of the flame through the gas-air mixture from the time the spark ignites the first bit of fuel, I can explain it better. The gas-air mixture of course burns completely within a small fraction of a second, both because it is not very large in volume and because it is naturally highly inflammable. But, it can not be said to burn instantaneously.

"A slow movie of the burning gas would show first a cup-shaped area surrounding the tip of the spark plug and this gas would be a glowing red. That red area would mean that the gas surrounding the plug was being burned to carbon dioxide and steam just as ordinary natural gas, when burned in a stove, is burned to form heavy carbon dioxide gas, and steam.

"It so happens that the volume of these products is several times the volume of the gasoline vapor and as they form they also crowd into the small space and further compress the unburned gasoline vapor.

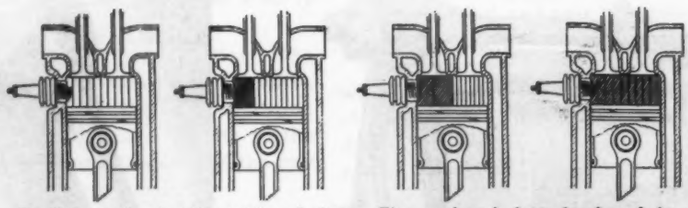
"But a gasoline-air mixture will not stand to be squeezed and whenever it is crowded too much it ignites of its own accord. This often happens before the flame from the spark plug has had a chance to ignite it. The result is a sharp explosion which burns up all the remaining gasoline vapor at once. This instantaneous pressure is exerted against the piston just as if it were hit with a hammer. When that happens you get that knock which you hear now. It means a waste of fuel, and abnormal strain and tear on your motor.

"Now the only way we know of eliminating this knock is by using a suitable gasoline. To you and to me, all gasoline looks the same, but there might be very serious difference so far as the motor is concerned. One gasoline may naturally contain volatile compounds that permits the gasoline vapor to be compressed without preigniting or certain chemicals may be added to the gasoline to accomplish this same purpose. A gasoline having this property is said to be suitable for use in a high-compression motor—it is an antiknock motor fuel and it has a relatively high 'octane number'."

Up to this point A. O. was patient, then he inquired, "What do you mean—octane number?"

Refiners Problem

Tech lapsed into the second part of his story by attempting now to correlate the automotive engineers' problems with those of the refinery engineers.



Spark occurs, igniting first portion of charge. First portion of charge has burned, increasing in temperature, pressure and volume and thus compressing the unburned portions. Second portion of charge has burned, further compressing unburned portions and recompressing the burned first portion. Last portion of unburned charge has been compressed to small fraction of its original volume and consequently is greatly increased in temperature and pressure.

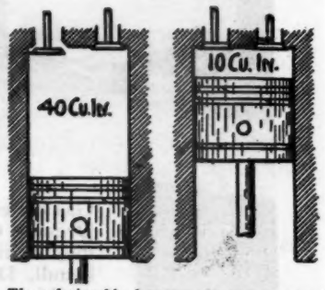
He started out by saying "It is natural that a mystery surrounds that term because there is nothing in either of the two words to suggest a meaning. However, that term could have been "per cent octane" just as well and maybe it would not have sounded so unusual. In fact, that is exactly what the term expresses and by knowing what octane is you will see the application of the term.

"Octane is the short way of saying 'iso-octane' which is a colorless pure liquid that you and I could not tell from gasoline itself. This material could be used instead of gasoline and it would not knock in any car under ordinary conditions but it costs about $25 a gallon, so it is apparent it would not be economical to do so.

"The opposite of this material is another liquid which also resembles gasoline but its name is "Heptane." This could be used instead of gasoline but it causes a bad knock in practically all cars. So, given one liquid that will not cause a knock and another one which will cause a knock and mix them together you can make a blend that will not knock in any specific motor. For instance, if you had a gallon of heptane and poured it into your gasoline tank after it had been drained and then started your motor, you would find it knocked badly, even when standing still. Then suppose you added to the heptane left in the tank, an equal volume of octane and you still got a knock. At this point you could draw the conclusion that 50 per cent octane isn't enough.

"Then suppose you drain your car and put in a mixture of 49 per cent heptane and 51 per cent octane and after you run your engine you find it does not knock. From these tests you know that your motor, for satisfactory operation, demands a blend containing at least 51 per cent octane.

"However, coming back to the fact that you and I can't afford to burn octane and have to buy ordinary gasoline, refiners must establish some similar method of measuring the knocking tendencies of commercial gasolines and use the octane and heptane in the laboratory only.



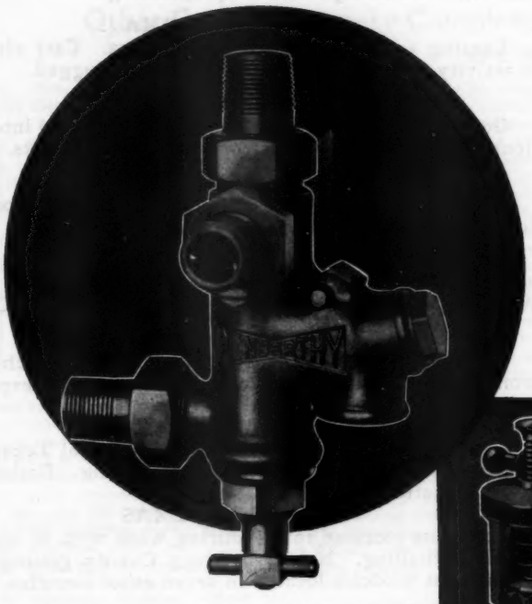
The relationship between the uncompressed volume is 40 cubic inches to 10 cubic inches, or the compression ratio of this engine is 4 to 1.

"The logical thing to do, you see, is for all concerned to choose a standard motor and prescribe a definite procedure for its operation and then go through the same routine I outlined for your motor. In the laboratory, however, we will first see how badly the sample of commercial gasoline knocks.

"Then we will add octane in definite amounts and when we just reach the point where our test fuel knocks just as badly as the sample of gasoline we will have established a relationship between the two. Assuming we needed 55 per cent octane blended with the heptane to just equal the knock intensity of the gasoline you can get technical and say the gasoline has an octane number of 55.

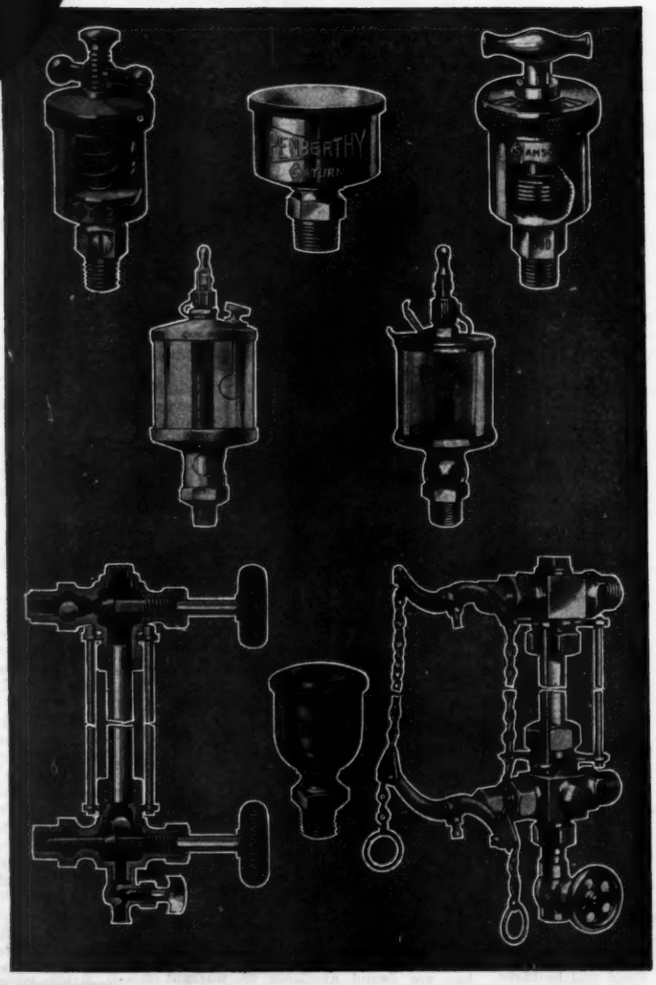
"So, you see why these oil companies are advertising '70 octane number gasoline' and why some competitor will tell you his gasoline has an octane number of 75. You can see where the competitor's gasoline may be considered a better fuel from the standpoint of its knocking characteristics. On the other hand your engine may not need a gasoline above 70. Thus, you are going to have to decide from the operation of your motor and the price you have to pay for the gasoline, whether you want a fuel of 'high octane number'."

"Thanks, Tech, for that dope," was A. O.'s comment. "I haven't attempted to keep up on developments like that but I'm ready to make an admission to you as a result of a better understanding of the subject now. I've been buying my gasoline from a cut-rate outfit which handles 'Anybody's Gas' and maybe if I would try a regular-priced and branded gasoline I could make this old boat sound different too. I'll take your tip, anyway."



ECONOMY SUGGESTS

PENBERTHY PRODUCTS



THE fact that such a large number of operating organizations in the "Close Buyer" class have for years used only these injectors, liquid level gages and lubricating devices, is significant of the fundamental economy of Penberthy Products.

These Penberthy Products are cast from new brass . . . not made from spun or stamped brass. The design and workmanship allow for the rough handling that is probable.

Penberthy Products are carried in stock by supply companies everywhere.

PENBERTHY INJECTOR COMPANY

DETROIT

ESTABLISHED IN 1886 CANADIAN PLANT, WINDSOR, ONT.

WASHINGTON'S FIRST COMMERCIAL OIL WELL BROUGHT IN BY LESLIE

SEATTLE, Wash., Dec. 1.—The No. 1 Sims well of the Leslie Petroleum Co. (the Robert Dollar organization), in the Hoh River Valley, came into production at 805 feet with an initial flow of 20 bbls. daily of high grade paraffin oil. This is the first commercial well in the State and it is pointed out that it may represent the last corner of the United States still left for oil development.

At 770 feet gas began showing in the shale. At 775 feet a well saturated sand was penetrated. The well filled up with oil and in the process of bailing it was estimated that it was good for 10 to 20 bbls. a day. The sand, mixed with shale, as are many of the western sands, was about 20 feet thick. The gas flow was about 300,000 feet. The oil is much like the seepage oil of the Olympic Peninsula.

Irvine Stewart, formerly chief geologist for The Texas Company on the Pacific Coast, and now with Leslie Petroleum, decided on drilling deeper. The increasing strength of the oil showings, together with a gas volume increasing with depth, seems to point to deeper sands that may be richly productive. Drilling has been slow, as it is necessary to carry casing from the top of the ground. It is believed that the showing already made by the No. 1 Sims will start a train of important development in motion.

Regardless of what may be found by deeper drilling in the Sims well, it is regarded as certain that the shallow sand will be intensively developed in the immediate future. Persons informed concerning oil conditions in this area point out that the field offers relatively small drilling costs, a high gravity oil that can be handled easily in small and inexpensive topping plants, and a ready market close at hand.

Geologists who have studied the Hoh formation predict that the Sims well will find other sands. They say that because of the peculiar geological setting of the location these sands can be depended upon to be saturated if the sand already drilled into by the Sims well is found saturated. The geologists say they have no definite opinion as to how high up on the structure the Sims well is and that under more favorable structural conditions these shallow sands may be highly productive. E. J. Lesser is president of the Leslie Petroleum Co.

Late Fields

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Nov. 30.—Grayburg Oil Co.'s No. 1 Martinez, Survey 4, Zapata County, at 1,939 feet took a core saturated with oil and has set casing. It is 2½ miles from nearest oil production but a north offset to a Magnolia Petroleum Co. gas well in Survey 3.

OKLAHOMA

According to Umpire Ray M. Collins, the Greater Seminole area is expected to show a potential of 308,515 bbls. The 5,000 bbls. which is allowed to Class "A" wells in the area is not included. Two of the pools have not completed their potential gauges. Little River and East Earlsboro Pools are expected to add an additional 6,000 bbls. to the present totals. The following gauges are the approximate totals for each pool:

Pool—	Potential (Bbls.)
Allen	18,862
Asher	5,353
Bowlegs	26,990
Carr City	38,315
Old Earlsboro	25,250
East Earlsboro	19,536
South Earlsboro	3,701
Konawa	13,324
Little River	37,110
East Little River	4,322
Maud	3,515
Mission	16,217
Sasakwa	2,723
Searight	6,746
Seminole	24,467
East Seminole	2,511
St. Louis	35,428
West Seminole	8,272

All the pools in the Greater Seminole area are allowed 50 per cent of their potential production daily, with the exception of the West Seminole area which is allowed 3,000 bbls. a day.

The Oklahoma City Field will be three years old on December 4, and during the first three years the field has produced approximately 82,685,000 bbls. of oil. A total of 847 wells has been completed in the field.

The community test being drilled by Barnsdall Oil Co. and others' No. 1 in the C SW NW Section 17-14-5, a wildcat in Lincoln County, was spudding. The acreage has been unitized and the drilling operations will be under the supervision of Barnsdall Oil Co. Interests are held by Stanolind Oil & Gas Co., Carter Oil Co., Coline Oil Co., Gypsy Oil Co., Tom Slick Oil Co.

The wildcat test of Hilton Phillips and others' No. 1 Cash, SW cor. NW Section 2-14-3, Lincoln County, was fishing at 4,843 feet for a drill stem. The owners may be forced to abandon the test if they are unable to clean out the hole.

Activities in southern Oklahoma include Taliaferro and others' No. 1 fee, SW cor. SE NW Section 34-5s-5, near Madill, in Marshall County, which was drilling at 910 feet after finding a sandy shale at 835-38 feet, where oil was expected.

Dixon and others' No. 1 McDuffel, SW cor. SE Section 3-7s-6, Marshall County, was drilled to a total depth of 1,090 feet, and plugged back to 828 feet, where it tested dry. It may be abandoned.

Summers & Sellers' No. 1 Beam, NE cor. SW NE Section 20-7s-5, is a rig.

Schermerhorn-Ardmore Oil Co.'s No. 1 Boruland-Howard, NE cor. NW SW Section 1-6s-1, Love County, is a location, waiting for the weather to change before moving in material. Charles VanVleck and others' No. 1 Sheldon, NE cor. SE NW Section 14-8s-2w, Love County, was fishing for a drill stem at 1,523 feet.

Paul Turner and others' No. 1 Carter, SW cor. NW Section 13-1s-3w, a half mile north of the Tatums Pool, is a rig. It is waiting to rig up when the roads dry out before moving in tools.

KANSAS

New operations in Kansas total 13 for the week ending November 28. Six of these are old wells being drilled deeper.

(Continued on Page 104)

OHIO OIL CO. DENIES

The Ohio Oil Co. denies that it has any intention of laying pipe lines from its present terminal at Ogden to Idaho and the Pacific Northwest, as reported to have been expected by William Scowcroft, president of the Mountain States Oil & Gas Co. It is stated that the one wildcat being drilled at Weiser, Idaho, has not found anything to warrant a commercial well, either oil or gas.

BUYS EASTERN GAS LEASE

HUNTINGTON, W. Va., Nov. 30.—Announcement was made here that Columbia Gas & Electric Corp. had purchased 28,000 acres of oil and gas lands in Kentucky and West Virginia from R. R. Smith of Huntington and the L. E. Houston estate of Cincinnati.

The purchase price was reported to have been approximately $1,500,000.

Company officials at Charleston said no immediate new development was planned but that some of the property centering in Martin County, Kentucky, had been improved and was producing 15,500,000 feet of gas daily.

High Spots in Field News

NORTH LOUISIANA, ARKANSAS, MISSISSIPPI

Mississippi field leads in activity with 4 out of 11 completions. More than dozen rigs constantly operating.

OKLAHOMA

Leasing active in Oklahoma City area. Carr city pool second in activity. Beckham county wells being plugged.

SOUTHWEST TEXAS

Good showing in Nueces County test. Several interesting operations in Pettus district. Balcones Fault disappoints.

CALIFORNIA

Elwood operators agree on unit plan of operations. State production may be set at 450,000 bbls. daily in new year.

ROCKY MOUNTAIN AREA

New Mexico well has big gas pressure. Good completion in Wyoming. Cold weather hinders operations in the Colorado Field.

KANSAS

Wildcat tests along Ellsworth or Barton Arch indicate area promising for future production. Commission explains limiting order.

GULF COAST

Two new fields due to be opened, in coastal Texas and southern Louisiana, not to lead to competitive drilling. Barbers Hill active. Pierce Junction revival.

EAST TEXAS

Locations increase to 117 during week with 90 completions and 657 wells drilling. Northern Gregg County getting most play at present, but wildcats located in seven other counties.

WEST TEXAS, NORTH TEXAS AND PANHANDLE

Ranger and Wichita Falls areas report 26 new locations, with Brown County leading and Young and Archer busy. Ward County well makes 130-bbl. head.

OPERATORS IN ELWOOD FIELD ADOPT UNIT PLAN OF OPERATION

By L. P. Stockman

LOS ANGELES, Calif., Nov. 30—Operators in the Elwood Field of Santa Barbara County at a general meeting held in Los Angeles today, unanimously ratified a proposal to unify drilling and production activities in the recently discovered deep Sespe zone of that field at the earliest possible moment. In accordance with this decision an engineering committee was appointed consisting of Frank Morgan, Rio Grande Oil Co., chairman; Dave Caldwell, Barnsdall Oil Co.; R. R. Templeton, Pacific Western Oil Co.; D. Bernt, C. C. Spalding interests; Harry Abruns, Bankline Oil Co.; L. A. Cranson, Honolulu Consolidated Oil Co.; D. Lycan, Seaward Oil Co., and Harry Godde, Signal Oil and Gas Co. The Engineering Committee charged with the task of working out detailed plans for unitization of all productive zones below the present Vaqueros horizon will hold its first meeting Wednesday.

The unit plan of operation involving the Elwood Field was proposed by E. B. Reeser, president of the Barnsdall Oil Co., and until recently president of the American Petroleum Institute. After a general discussion, the projected plan was unanimously endorsed and the Engineering Committee instructed to report back to the General Committee at the earliest possible moment. Approximately 750 acres and seven operators are involved in the proposed plan for unitization of deep zone exploration at Elwood.

The unit plan of operation to be put into effect in the Elwood Field will not affect the present productive Vaqueros zone although surplus natural gas from deep zone exploration will undoubtedly be used for storage and repressuring operations in the Vaqueros horizon. The Barnsdall and Rio Grande, co-discoverers of the prolific Elwood Field, recently proved the Sespe formation highly productive when their No. 14 Bell Luton was brought in flowing 3,000 barrels per day from 4,385 feet in October of this year. This well had only a small penetration in the Sespe oil sand and consequently the initial daily production represents only a part of the maximum initial which would have resulted if a deeper penetration had been taken.

Unified development in the Elwood Field will permit operators to regulate future production and by eliminating competitive drilling will advance California's curtailment program. It is the present intention of operators to retard deep zone exploitation at Elwood as long as possible although this period of inactivity is dependent to a large extent upon the attitude of lessors who have not yet been contacted. The Barnsdall and Rio Grande shut in their discovery well immediately subsequent to completion and it will remain in this status pending the outcome of the unitization plan now under consideration.

MICHIGAN'S BIGGEST ESTIMATED 5,000 BBLS.

MUSKEGON, Mich., Nov. 30.—The largest producing well yet drilled in Michigan was completed late in the past week by Walter L. McClanahan in his No. 1 Morrison SW SE Section 10-14n-2w Greendale township, Midland County. The well which was first reported as having started off at 45 bbls. an hour was later reported as making 200 bbls. an hour, after it was drilled deeper into the Dundee Sand on Friday. It is classified as a 5,000 bbl. initial producer.

The location is on the eastern edge of developments in the Midland field. This is McClanahan's third big well in the Midland area, all of them having been recently completed. The largest well ever drilled in the Muskegon field was reported to have made 4,000 bbls. on its initial flow. The potential production of the Midland field is now placed at 22,000 bbls. per day.

East Texas Adds 117 New Locations

Northern Gregg County Leads but Wildcats Are Staked in Seven Other Counties. Ninety Completions During Week and 757 Drilling

By L. E. Bredberg

DALLAS, Tex., Nov. 30.—Locations increased in the district this week, totaling 117, which includes one wildcat in each of the following counties: Cherokee, Lamar, Polk, Rusk, San Augustine, Smith and Van Zandt. The remainder of the locations were made in the proven area. One test in Red River County which has been standing shut down at 3,538 feet for some time is to be deepened. It is Gibbs and others' No. 1 Mace in the William Collum Survey.

Northern Gregg County is receiving the greatest amount of new locations, and is the most active area at the present time, and has been for the past few weeks. Fifty-one of this week's locations were staked in that area. Southern Gregg is the next most active area, with 16 new locations this week. Upshur County is also active, with 16 locations. This is the northern extension of the Latrop Pool of Gregg County.

There were 90 completions in the district during the week, and 3 in the Van Pool, a drop of 49 completions from the previous week's total of 142 wells. Forty-three of the new wells were brought in in northern Gregg County, 19 in southern Rusk, 9 in southern Gregg, 9 in northern Rusk, 1 in Smith County and 9 in Upshur County.

There is a total of 657 drilling activities in the producing area at the present time, including 101 locations, 182 derricks, 48 tests rigging up, and 326 drilling. Forty tests are standing shut down, most of them with only the derricks standing. Operations are distributed in the area as follows: Lathrop Pool, 265; Gladewater area, 47; south of the Sabine River in Gregg County, 133; Bateman area, 63; Joiner Pool, 152; Smith County, 37. There is a total of 121 wildcats drilling, standing with derricks, or mere locations.

Check of Leases

A check was made in regard to number of leases and producing wells on the various leases, with the unit plan in mind, and the following was reported: Number of leases less than 20 acres having more than one well, 106; number of leases of less than 20 acres having one well, 587; number of leases of 20 acres or more having more than one well, 242; number of leases of 20 acres or more having one well, 1,001. This gives an idea as to how the wells are grouped in the district, the greatest number of wells being drilled on leases having 20 or more acres. It also shows the comparatively few small leases, those having less than 20 acres, which have only one well per lease.

There are now 17 wells in the Gladewater and Kilgore areas which are making water, several others having been plugged back to shut off the water, while two others which made but little oil with water were abandoned.

On November 25 the 10 leading producing companies in the district show up as follows on an activity report:

Company—	Number of producers	Active operations	Drilling
Humble O. & R.	384	62	27
Gulf Prod.	304	27	10
Magnolia Pet.	182	29	15
Sinclair O. & G.	157	7	4
Shell Pet.	106	14	7
Sun Oil	92	18	7
Tidal Oil	85	10	4
Stanolind O. & G.	82	16	6
Yount-Lee Oil	71	14	8
The Texas Company	66	11	6
Total	1,428	208	92

At the present time there are 13 wells standing without producing, or carried on reports as dead wells, 86 pumping and 24 flowing only when agitated by swab or pump, almost every week some new well completed or reported as an edge well showing water when completed, some edge well abandoned, or other wells being equipped for pumping. These wells are all located on either the western or eastern edge of the pool. The Humble Oil & Refining Co. abandoned its No. 1 Mackey in Sarah Harrell Survey on the northwestern edge of the Gladewater area, Upshur County. It topped the sand at 3,636 feet, and was drilled to a total depth of 3,674 feet encountering salt water.

Crude in Storage

On November 1 there were approximately 3,000,000 bbls. of crude in storage in the district, including storage in Nacogdoches, Shelby and other counties just outside of the producing area in which several of the purchasing companies have tank farms. On November 20 there was a total of 1,793,893 bbls. in storage in the following five counties:

	Bbls.
Gregg	1,105,434
Rusk	518,468
Upshur	32,931
Smith	129,731
Cherokee	16,329

Considerable oil has been run from storage in these five counties during the past three weeks, the last period showing a daily average of only 3,017 bbls. taken out of storage. On November 28 there were 449,588 bbls. run through pipe lines and by tank cars whereas production for that day showed only 399,397 bbls., a difference of over 50,000 bbls. for that day, or runs from storage amounting to that figure. This is one of the largest withdrawals ever made in one day since the field was reopened on September 17.

The Texas Pipe Line Company has turned over connections on 25 leases in the Gladewater, Kilgore and Joiner areas during the past two weeks.

The Magnolia Pipe Line Co. is connecting to more leases, and is taking over the Vacuum Oil Co's. connections which the Humble Pipe Line Co. have held until recently. The Sinclair Pipe Line Co. renewed its contract with H. L. Hunt, Inc., and will take 3,000 barrels per day from that company, paying the posted price, plus a 5 cent per barrel gathering charge.

J. E. Lucas' No. 1 Negro Church Lot in the James Jordan survey, a short distance east of Sinclair Oil and Gas Co's. No. 1 Wiley which was abandoned some few months ago, located on the west side of the Joiner Pool, Smith county, has also been abandoned after making from 75 to 90 per cent salt water with some oil, at a total depth of 3,672 feet. It established another marker on the western edge of the Joiner Pool.

Upshur County Test

Shasta Oil Co. and others' No. 1 Hall in the R. T. Gibson survey, approximately 6 miles northeast of Cranfill and Reynolds' test in southeastern Upshur County, appears to be running low on base of the Pecan Gap chalk which was logged at 3,055 feet. Elevation of the test is 349 feet. It is now drilling at 3290 feet in shale. Cranfill & Reynolds test which created considerable excitement 10 days ago when it tested around 32 barrels of oil of 35 gravity at 3,728 feet, or at a minus 3,399 feet, which is far below the water level in the producing area of the district, is still shut down. It is not known when plug will be drilled and the well tested, and geologists and production men are still wondering just what it will do when tested, the reason for the lower gravity oil found in the test, and just why the pay horizon is found so low, unless a new sand has been encountered. Dip to the north may be responsible for the sand being lower, and migrated oil from the main body of the pool may be responsible for the oil testing 5 degrees less than oil found in the main sand body.

New Operations

Harper and Parkinson have assembled a 900 acre block centering around their location in the J. T. Lowry tract in the C. B. Jenkins survey, northeast of Mt. Sellman, Cherokee County.

A wildcat is to be drilled to 3,500 feet on a block assembled in Ellis County, southwest of the town of Midlothian.

George Green and others have taken 700 acres west of the Gulf Production Co. and Humble Oil and Refining Co's. block in the northeastern part of Rains County, and will drill a well when acreage deal is closed.

The Pilot Oil Co. and Snebold of Fort Worth, are rigging up on their test which is located on the J. D. Price and others tract in the A. H. Woods survey, Upshur County, approximately 4 miles west of Gilmer. This will be another interesting test for Upshur County.

SHIPMENTS THROUGH MAIN TRUNK LINES

Week Ending November 23

Company, size and location—	Bbls.
Atlantic P. L. Co., 10-in., Atreco	13,468
Arkansas P. L. Co., 8-in., Shreveport	1,626
Atlas P. L. Co., 8-in., Shreveport	4,539
Gulf P. L. Co., 2-8-in., Oklahoma	31,109
Gulf P. L. Co., 2-8-in., Port Arthur	7,368
Houston Oil Co., 8-in., Amigo	
Humble P. L. Co., 2-10-in., Shreveport	51,922
Humble P. L. Co., 2-8-in., Todd	56,820
Liberty P. L. Co., 8-in., Rusk	4,027
Magnolia P. L. Co., 10-in., Center	17,034
Magnolia P. L. Co., 12-in., Corsicana	40,693
Shell P. L. Co., 10-in., Houston	25,350
Sinclair Texas P. L. Co., 12-in., Teague	38,006
Sun P. L. Co., 10-in., Sun City	14,787
Texas P. L. Co., 10-in., Douglass	30,485
Tex. Empire P. L., 12-in., Pt. Arthur	40,744
Tidal Ref. Co., 6-in., Carthage	2,643
Total	370,621

SHIPMENTS TO REFINERIES

	Bbls.
Arrow Ref. Co., Overton	1,252
Beacon Ref. Co., Henderson	1,723
Boone Ref. Co., Arp	497
Central Ref. Co., Friars Switch	S.D.
Constantin Ref. Co., Overton	S.D.
Diamond Ref. Co., Overton	227
East Texas Ref. Co., Longview	3,930
East Texas Ref. Co., Friars Switch	3,931
Gladetex Ref. Co., Gladewater	127
Gladewater Ref. Co., Gladewater	186
Kilgore Ref. Co., Kilgore	652
W. B. Mackey Ref. Co., Gladewater	310
Overton Ref. Co., Overton	494
Pet. Refractionating Co., Longview	S.D.
Sinclair O. & G. Co., Longview	1,177
Slack Ref. Co., Camp Switch	S.D.
Southern Oil Ref. Co., Reed Switch	502
Taylor Ref. Co., Tyler	2,085
Total	17,093

SHIPMENTS BY TANK CAR

	Bbls.
Houston Oil Co., Kilgore	1,230
Cherokee Chief (Chalmette Ref. Co.) Gladewater	472
F. & M. Transport (Chalmette Ref. Co.), Camp Switch	293
Pilot Oil Co., Willow Springs	800
Tidal Ref. Co. (Chalmette Ref. Co.), Camp Switch	366
Tyler P. L. Co., Tyler	83
Total	3,242

Total daily average distribution 390,956
Total daily average production 387,934
Daily average from storage 3,017

EAST CENTRAL TEXAS WILDCATS

Week Ending November 30

ANDERSON COUNTY

Company, well, farm name, section and block— Remarks:

C. R. Wilmuth et al's No. 1 N. B. Watson, 500 ft. from W line and 4,850 ft. from N of S line of survey in S half of 129-ac. tract, M. Main Sur. ..... Drlg. 600 ft.

BOWIE COUNTY

Tom Bell's No. 1 Merritt, 1,225 ft. from N and 575 ft. from E line of survey, T. S. McKinney Sur. ..... Drlg. 3,480 ft.

Logan and Elliott's No. 1 J. W. Smith, 9,600 ft. S and 2,500 ft. W of NE cor. of survey, Charles Lewis Sur. ..... S. D. 4,502 ft.

W. S. Langford's No. 1 W. W. Whybark, 200 ft. from S and W of SW cor. of J. A. Dyer Sur. ..... S.D. 1,880 ft.

Lee Timberlake et al's No. 2 Julius N. Tidwell, 655 ft. from E and 2,510 ft. from S of survey in L. M. Rice Sur. ..... S.W. on drill stem test; S.D. 3,012 ft.

CHEROKEE COUNTY

Bridges and Candler's No. 1 Berryman, center of Berryman tract, H. Kimble Sur. ..... S.D. 1,000 ft.

Denman et al's No. 1 Mrs. Renfroe, 330 ft. N of S line and 330 ft. E of W line of farm, Uriah Moore Sur. ..... Derrick.

Harper and Perkinson's No. 1 J. T. Lowery, 650 ft. from N line, 150 ft. from W line of Block No. 5 on a 139.6-ac. tract, 4 miles W of Troupe, C. B. Jennings Sur. ..... Digging slush pit.

Wilson & Stubbs' No. 1 L. Robart, 450 ft. from S and 150 ft. from W of lease, J. B. Wolfin Sur. ..... S.D. 1,861 ft.

DALLAS COUNTY

Paris' No. 2 Wilkinson, 2,787 ft. from NW and 3,241 ft. from SW of John P. Anderson Sur. ..... T.D. 1,230 ft.; S.D.

Joe Wilson's No. 1 fee, 600 ft. from N line and 600 ft. from W line of 1,500-ac. tract, John Scroggs Sur. ..... Drlg. 203 ft.

DELTA COUNTY

Worthington et al's No. 1 Pejernett, 776 ft. from S and 150 ft. from W in E. Chick Sur., 1½ miles W of Horton ..... S.D. 3,915 ft.

ELLIS COUNTY

Clark Brooks' No. 1 C. W. Golliday, 300 ft. from S line and 300 ft. from E line of tract and survey, John Bones Sur. ..... Set 8-in. csg. 1,475 ft.

E. M. Roger's No. 1 John Lee Winn, 1,650 ft. from E and 150 ft. from S of Orland, Orlo Wheeler Sur. ..... S.D. 1,435 ft.

Worthen Pet. Co.'s No. 1 Cerf, 2½ miles NE of Ennis ... S.D. 2,269 ft.

FANNIN COUNTY

Lucas Dev. Co.'s No. 1 R. Peeler, 175 ft. from E and 600 ft. from S lines of farm, F. L. Hart Sur. ..... S.D. 700 ft.

Ed. V. Parson's No. 1 Morgan, J. E. English Sur. ..... Fishing 3,959 ft.

FRANKLIN COUNTY

Tom Harper's No. 1 fee, 150 ft. from N line and 200 ft. from E line of 116-ac. tract, W. M. Dawson Sur. ..... Derrick.

(Continued on Page 84)

COMPLETIONS IN EAST CENTRAL TEXAS

Gregg County

Amerada Petroleum Corp.'s No. 2 W. E. Bumpass, top sand 3,552 feet, initial production 80 bbls. in 30 minutes through 1-inch tubing choke, total depth 3,579 feet. Arkansas Fuel Oil Co.'s No. 2 A. Lee, top sand 3,604 feet, initial production 62 bbls. in 30 minutes through open tubing, total depth 3,619 feet. Atlantic Oil & Production Co.'s No. 2 Wilson, top sand 3,597 feet, initial production 60 bbls. per hour through 1-inch tubing choke, total depth 3,597 feet. Bailey &

(Continued on Page 81)

New Activity in Ranger and Wichita

Twenty-six Locations During Week, Brown County and Young and Archer Being Busiest. West Texas Watching Ward County Test

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Nov. 30.—Shipley and others' No. 1 Monroe, the western Ward County Delaware sand wildcat in Section 3, Block 1, W.&N.W. Survey, made another head of oil on the night of November 26, flowing 130 bbls. in that head and totaling around 330 bbls. since it was tested at total depth of 4,666 feet. The 130-bbl. head followed after the well was agitated for a short time. It is now shut in waiting on 5⅛-inch casing which will precede 2½-inch tubing which is now on the rack and ready to be run.

This is the most interesting wildcat that has been drilled and encountered oil in the Permian Basin for many months in view of the fact that it opens the first Delaware sand pool in Ward County and has possibilities of extending the Wheat Pool of Loving County approximately 13 miles to the south, or opening up a new pool from the same horizon and in that trend. The well had not created much excitement on account of its depth, appearing as a small well, and in view of the fact that Shipley and associates hold approximately 4,500 acres immediately surrounding the test.

There was only one location staked in the Permian Basin this week, another test on Gulf Production Co.'s McElroy block in Crane County. There were no completions reported for the week.

Southwest Oil Production Co. and Penn Oil Co.'s No. 1 Tubb in Section 3, Block B-27, western Crane County test, is now drilling below 4,270 feet in lime. It encountered another showing of oil and gas at 4,104-11 feet after picking up four bailers of sulphur water from 4,062-75 feet, the first water struck in the test.

Stanolind Oil & Gas Co.'s No. 1 Williams in Section 1,195, T.T. Survey, Irion County, ran into four bailers of salt water per hour at 6,795 feet in sandy lime and is now bailing. This is one of the most interesting tests in the basin at the present time, due to its depth, and its search for the deep pay found in the Reagan County Pool to the west. The late P. H. Williams of San Angelo formerly drilled a test to 8,900 feet in Irion County in search of the Big Lake deep pay, but it picked up salt water at 8,885 feet. It was located in Section 20, Washington County School Lands. Plymouth Oil Co. is drilling a deep test in Irion County also. It is located in Section 3,081, Block 28, H.&T.C. Survey, and is now drilling below 5,580 feet in lime. It will try for the Big Lake deep pay.

WEST TEXAS PRODUCTION

County—	No. wells	Prod. (bbls.)
Crane	377	18,182
Crockett	51	1,088
Ector	78	6,468
Fisher	79	915
Garza	2	20
Howard-Glasscock	544	25,663
Irion	9	59
Jones	89	1,369
Loving	46	3,750
Mitchell	111	1,744
Pecos	551	66,038
Reagan	355	29,932
Runnels	5	55
Scurry	5	0
Upton	265	4,576
Taylor	263	61
Ward	78	3,848
Winkler	595	36,084
Total production this week		199,855
Total production last week		202,434
Decrease		2,579

RANGER AND WICHITA FALLS

Activities continue to increase in these two districts, location reports showing a total of 26 new activities for the week. Brown County is the most active in the Ranger district, while Young County leads in activities in Wichita Falls district, Archer County also being an active county. Two locations were reported for Grayson County this week. This county has never been active, with no production carried on production reports, but with a little gas and oil discovered in the county, consequently two new tests will be interesting news for the area.

F. L. Walker completed the largest gas well yet brought in in the Strawn townsite pool, Palo Pinto County, when his No. 1 Bennings in Block 14 topped the Strawn sand at 2,997-3,017 feet and blew in making 24,000,000 feet of gas. This pool has been one of the most interesting areas in the Ranger district during the past year. There have been 17 gassers completed in the pool, and at the present time there are three others drilling. Most of the drilling is done with machines, although there are a few standard derricks up in the pool. The Lone Star Gas Co. is connected with wells in the pool and takes the gas.

The Texas Pipe Line Co. is transferring some of its connections in the Wichita Falls district to other pipe line companies, principally the Stanolind Pipe Line Co. This is done mainly for economical purposes, where the company's activities have been widespread heretofore, some connected wells being located some distance from the company's main lines.

PANHANDLE DISTRICT

Production in this district fell off a daily average of 6,876 bbls. during the week due to many of the wells being curtailed to meet the new allowable set by the Railroad Commission. Many of these wells have been producing in excess of the allowable, and consquently will have to be cut down to a much lower figure in order to equalize production in the district since the issuance of the new order. Work of taking the field potential has not been completed, and the daily potential of the district is now estimated at around 90,000 bbls. per day instead of around 75,000 bbls. as was formerly reported.

There were two locations reported for the week, one in Carson and one in Wheeler County. There were two completions reported also, both of them gas wells and located in Moore County.

Gray County is the heaviest producing county in the Panhandle, producing from 760 wells, while Hutchinson County is next with 886 producers. Carson has 240 producers, Wheeler County 43 and Moore County 22. These make a total of 1,951 producers in the district, many of them gas wells.

COMPLETIONS IN PANHANDLE DISTRICT

Moore County

Texas Interstate Pipe Line Co.'s No. 1 Coon, top pay 2,675 feet, initial production 6,300,000 feet of gas, total depth 3,165 feet.

Texhoma Natural Gas Co.'s No. 1 Coon-Sneed, top pay 2,585 feet, initial production 11,500,000 feet of gas, total depth 3,211 feet.

NORTH TEXAS PRODUCTION

Panhandle district—	(bbls.)
Carson County	5,257
Gray County	36,427
Hutchinson County	12,183
Moore County	1,214
Wheeler County	527
Total production this week	55,608
Total production last week	62,484
Decrease	6,876
Wichita Falls district—	
Archer County	12,278
Baylor County	563
Clay County	581
Cooke County	1,750
Foard County	70
Haskell County	17
Jack County	3,054
Montague County	4,036
Throckmorton County	540
Wichita County	17,956
Wilbarger County	11,959
Young County	11,953
Total production this week	63,757
Total production last week	64,176
Decrease	419
Ranger district—	
Brown County	2,921
Callahan County	1,505
Coleman County	3,066
Comanche County	772
Palo Pinto County	370
Eastland County	3,712
Shackelford County	3,358
Stephens County	4,190
Total production this week	18,894
Total production last week	18,953
Decrease	59

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending November 30

BREWSTER COUNTY

Company, well, farm name, section and block— Remarks:

Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur. ....S.D. 1,935 ft.

E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur. ....S.D. 1,302 ft.

Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur. ....S.D. 2,900 ft.

Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 miles south Alpine ....S.D. 1,750 ft.

COCHRAN COUNTY

Penn Oil Co.'s No. 1 Myrick, C Labour No. 50 of League 129, Carson County School Lands ....Drlg. 4,210 ft.

CONCHO COUNTY

Beesley et al's No. 1 Waring Estate, 400 ft. from N and E Sec. 143, T.&N.O. Sur. ....S.D.

Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 136, 4 miles W of Paint Rock ....S.D. 1,850 ft.

CRANE COUNTY

Gulf Prod. Co.'s No. 3 McElroy, 2,310 ft. from N and E of Sec. 196, Blk. F, C.C.S.D.&R.G.N.G. Sur. ....Rig.

Southwest Oil Prod. Co. (Cranfill Bros.) and Penn Oil Co.'s No. 1 J. B. Tubb, 330 ft. from N and E of SW cor. of S 80 acres of NW cor. Sec. 3, Blk. B-27, P.S.L. Sur. ....Drlg. 4,150 ft.; small show oil 4,104-11 ft.

CROCKETT COUNTY

Doleman & Moore's No. 1 Ferner 2,136 ft. from N and 1,486 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur. ....Spudded and S.D.

CULBERSON COUNTY

Kerrarumpf et al's No. 1 Garren, 330 ft. S and W, Sec. 15, Blk. 79, Public School Land ....S.D. 1,280 ft.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW Sec. 46, Blk. M, H.L.&R.R. Sur. ....To resume drilling.

ECTOR COUNTY

Weekly Oil Corp. et al's No. 1 Cowden, 1,980 ft. from N and W Sec. 33, Blk. 43, Twp. 2s, T.&P. Sur. ....Fishing 2,595 ft.

H. F. Wurts' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G.M. M.Br.&A. Sur. ....S.D. 3,280 ft.

EL PASO COUNTY

Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 354, S.P. No. 7,247 ....Drlg. 1,940 ft.

(Continued on Page 85)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending November 30

CARSON COUNTY

Company, well, farm name, section and block— Remarks:

H. A. M. Oil Co.'s No. 2 Cooper, 330 ft. from S and E, Sec. 5, Blk. 9, I.&G.N. Sur. ....Location.

Texoma's Nat. Gas Co.'s No. 1-T McCoy, 1,257 ft. N, 1,309 ft. E line, Sec. 41, Blk. 4 ....Rigging up.

Texhoma Natural Gas Co.'s No. 3 Schaffer, center NW. Sec 63, Blk. 4, I.&G.N. Sur. ....Fishing 275 ft.

Texhoma Natural Gas Co.'s No. 1 Urbanczyk, center NE, Sec. 4, Blk. 4, I.&G.N. Sur. ....Drlg. 2,250 ft.

CHILDRESS COUNTY

C. L. Sloan et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands ....T.D. 5,000 ft.

COLLINGSWORTH COUNTY

Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur. ....S.D. 2,508 ft.

Downey et al's No. 1 Beasly, SE cor. SW SE, Sec. 95, Blk. 15, H.&G.N. Sur. ....Rigged up.

DEAF SMITH COUNTY

Western Union Oil Co.'s No. 1 Farwell, center NW, Sec. 18-3n-3e ....Spudded.

GRAY COUNTY

Anderson et al's No. 2 Vollmert, 330 ft. N and W, SW, Sec. 140, Blk. 3, I.&G.N. Sur. ....Drlg. 2,750 ft.

Back & Barber's No. 1 Back, 660 ft. from S and 330 ft. from W, Sec. 140, Blk. 25, H.&G.N. Sur. ....Standardizing.

Boyes et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur. ....Spudded and S.D.

Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur. ....S.D. 2,650 ft.

Dixon Creek Oil Co.'s No. 2 Horner, 330 ft. from N and E of Sec. 139, Blk. 3, I.&G.N. Sur. ....Drlg. 2,525 ft.

Parton Holt and Shell Pet. Corp.'s No. 1 Morse, 330 ft. S and E, Sec. 6, Blk. 26, H.&G.N. Sur. ....Spraying 20 bbls. daily; T.D. 3,387 ft.

Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE. Sec. 200, Blk. B-2, H.&G.N. Sur. ....Fishing 3,010 ft.

Graham et al's No. 1 Webb, 330 ft. from N and E of E half NE, Sec. 62, Blk. 25, H.&G.N. Sur. ....Drlg. 275 ft.

Jewel Oil Co.'s No. 1 Meers, 330 ft. from S and W of NW SW, Sec. 106, Blk. 3, I.&G.N. Sur. ....S.D. 600 ft.

Magnolia Pet. Co.'s No. 1 Arnold, 330 ft. from S and E, Sec. 149, Blk. 3, I.&G.N. Sur. ....Cellar.

Magnolia Pet. Co.'s No. 1 Heaston, NE cor. S½ NE, Sec. 164, Blk. 3, I.&G.N. Sur. ....Cmtd. 6-in. csg. 3,105 ft.

(Continued on Page 87)

"With very few exceptions every refinery organization operating plants east of California faces 1932 with the problem of raising the octane number of its gasoline"

—*Oil and Gas Journal,* October 22, 1931

Higher octane number means better anti-knock value

Dubbs cracking is the way to make better anti-knock gasoline direct from crude oil or from any fraction

How high a knock rating does today's engine need?

Whatever it is, Dubbs cracking units can make it

They're doing it

The Dubbs cracking process can make gasoline to meet any anti-knock standard the engine demands today or tomorrow

Universal Oil Products Co
Chicago Illinois

Dubbs Cracking Process
Owner and Licensor

Pipe Line Construction News

LINE PIPE BUSINESS EXTENDS OVER SEASON

By B. E. V. Luty

PITTSBURGH, Pa., Nov. 30.—Although from the usual viewpoint the line pipe season would be entirely over there is some business for the pipe mills in sight, details not being forthcoming thus far. Through the winter there are expected to be various small orders for gathering lines. For the next regular season demand is almost entirely a matter of financing, there being various promising projects. Banks as a whole are regarded as getting into much stronger position, but bankers themselves have grown so conservative that it may be some time before they loosen up.

Demand for casing and other oil country goods is running along about as formerly, being merely spotty and not aggregating much.

In standard or merchant pipe there has been no visible variation in volume of demand for two months or more. The usual seasonal increase did not occur and by the same token the usual decrease for December is not expected, as jobbers have little or nothing to liquidate against January 1 inventories.

Prices of standard pipe and other tubular goods are being strictly maintained all along the line, according to reports, and this is in keeping with conditions in finished steel products generally.

During the past month the steel trade as a whole has been doing better than in October, simply by reason of increases in demand in a few directions, there being various miscellaneous lines whose requirements have not increased at all, while there have been some decreases, seasonal or otherwise. In each of the past four weeks steel ingot production has been at about 29 per cent of capacity, against an average of 27¾ per cent in October as shown by the official monthly report. December is likely to witness the usual tapering off, though less pronounced than usual. The month has chances of running somewhat under October, but not much under. After the turn of the year the usual seasonal increase is to be expected, and more marked than in ordinary times as demand has got to such a low level, while it is thought that the recession in general business ended recently, to be followed by a slow upturn, which would give steel an additional impetus. According to steel trade conditions, when there is recovery from a general depression it is likely to show itself markedly in March rather than in the winter months.

Lake Superior iron ore shipments down the lakes have ended, with a season total of 23,467,786 tons, just a shade over half of last year's shipments, 46,582,982 tons.

NATURAL GAS ON WEST COAST

An Associated Press dispatch from Portland, Ore., says, "A request that the International Utilities Corp. be permitted to lay a natural gas pipe line from Weiser, Idaho, along the old Oregon Trail and Columbia Highway to Portland, was placed before the state highway commission. The corporation, not identified with the eastern company of the same name, was incorporated in Washington, September 26. It was capitalized at $50,000."

LAS VEGAS LINE

The Las Vegas city council, Las Vegas, N. M., has granted the Albuquerque Natural Gas Co., Albuquerque, an extension of 10 months in which to complete the natural gas line to Las Vegas and begin service. The extension taps the Albuquerque-Santa Fe line at a point near Santa Fe.

SLOPING DITCH MINIMIZES DANGER OF CAVING

Method employed in Illinois by Williams Brothers, Inc., pipe line contractors, in cutting and sloping ditch to prevent cave-in, during construction of Panhandle Eastern pipe line from Amarillo, Tex., to Indianapolis, Ind.

DISTRIBUTION CENSUS ON PIPE MANUFACTURE

WASHINGTON, D. C., Nov. 30.—More than one-half the sales by manufacturing plants primarily engaged in the production of wrought pipe and tubes is made to consumers such as manufacturers, gas and oil pipe line companies, railroads, etc. The Census Bureau's data, collected for the census of distribution, show that of the total sales by the industry in 1929 amounting to $124,659,000, 58.9 per cent, or $73,354,000 was sold in this way.

Sales were made to wholesale distributors amounting to 40.6 per cent or $50,642,000. Manufacturing plants sold 0.5 per cent, or $663,000 worth of goods, to their own sales branches.

Of the sales to distributors and consumers, $7,010,000 was made through manufacturers' agents, selling agents, brokers or commission houses. Eight manufacturers sold through such agents, two of them selling their entire output in that way.

This report shows the sales channels used by the 50 manufacturers primarily engaged in making wrought-welded pipe and tubes such as boiler tubes, oil country casing, tubing and pipe, other black pipe, galvanized pipe, finished electrical galvanized, sherardized or enameled conduit, mechanical tubing and heavy riveted pipe.

The total value of shipments or deliveries of wrought pipe and tubes reported for 1929 in all industries was $455,277,000. The sale of $120,706,000 worth of wrought pipe is included in this report together with $3,593,000 worth of secondary products. The remaining $330,618,000 worth of wrought pipe and tubes was produced almost entirely in the steel works and rolling mill product industry, and its sale is included in the report for that industry.

AJAX BUYS WRAPPING

It was reported in Tulsa during the past week that the Ajax Pipe Line Co. had purchased paper for wrapping 400 miles of 10-inch pipe. This seems to bear out the belief the Ajax Pipe Line Co. will construct a 10-inch loop to its twin 10-inch line from Glen Pool, near Tulsa, to Wood River, Ill.

CONTRACTS LET FOR LINE TO ROCHESTER

The 16-inch pipe line of the Minnesota Northern Natural Gas Co. across the Minnesota-Iowa border en route to Owatonna is the only natural gas pipe line in Minnesota. Gas was available for distribution December 1 in Minnesota.

Contracts have been let for an additional 40 miles of 12-inch and 10-inch branch line from Owatonna east to Rochester, Minn. In Rochester natural gas will be used by the Franklin Heating Station, which furnishes heat, light and power to the Mayo Clinic and several hotels and other buildings in Rochester. The Rochester Municipal Light & Power Plant has also contracted for natural gas.

In the Minnesota line, electrically welded steel pipe is used in 40-foot lengths joined by Dresser couplers, except for bends and road crossings, where three joints are oxy-acetylene welded. The glacial hills crossed furnished almost continuous work for a bending crew making some 8 to 15 bends per mile. They are all made in the field using acetylene blow torches to heat the pipe and a tractor winch for applying pressure.

One-inch taps for each farm crossed are being welded so that the farmer may have the benefit of natural gas heating although far from any town distributing system. The Northern Natural is one of the few companies that offers this service to the farms crossed.

COLORADO GAS LINE

Arkansas Valley Natural Gas Co., Rocky Ford, Colo., has been granted franchises in Ordway and Sugar City, Colo. Service will be extended from Rocky Ford to the towns, supply coming from the Amarillo-Denver line. The company is now conducting a survey for the line route.

MISSOURI GAS LINE

Western Service Corp., Oklahoma City, has been granted a three-months' extension on its franchise to serve Appleton City, Mo., with gas. The company plans to lay 40 miles of pipe to serve that town as well as Montrose and Deepwater, Mo.

STANOLIND'S PURCHASE SUGGESTS PIPE LINE

DALLAS, Tex., Nov. 30—In the Stanolind Oil and Gas Co.'s purchase of a half interest in the Pure Oil Co's. block in southern Rusk County, reported last week, there was no cash consideration, the former company to operate the leases paying operation and production costs out of three-fourths of the first oil produced, then to operate on a fifty-fifty basis. No locations have yet been staked, but a couple of wells will perhaps be started soon on the northern end of the block. The Texas Company has made 3 locations in this area to prove leases that require drilling, and these tests will have a bearing on drilling of the Pure block. The contract made between the Stanolind Oil and Gas Co. and Pure Oil Co. calls for a natural gasoline plant on the block, which will later be used for repressuring purposes.

The Stanolind Pipe Line Co. has no pipe line out of the East Texas district, the Humble Pipe Line Co. transporting crude to Mexia for the company where it is taken over by a Stanolind trunk line and the oil pumped north to Oklahoma, but purchasing a half interest in this block will insure more production for the company, which will no doubt have much weight in leading the company to lay a trunk line out of the district to Mexia to transport its own oil.

PIPE LINE TO CARRY CARBON DIOXIDE GAS

Walden, Colo., reports construction of a pipe line to carry carbon dioxide gas from the wells in Jackson County, Colorado, to Laramie, Wyo., early in 1932 is contemplated, and that manufacturing of dry ice will begin on a large scale as soon as arrangements have been completed for transporting the gas from the Walden fields.

Oil and gas first were developed in the Walden Field in 1926, but there has been very little intensive development since, probably due to the remoteness of the wells.

Four tests have been drilled on the North and South McCallum structures, near Walden, by the Continental Oil Co. In the Muddy sand, at 5,000 feet, several million feet of carbon dioxide gas were found in the four wells and commercial production of high grade oil was discovered. Some of this oil is of 58 gravity.

OKLAHOMA CITY PIPE LINE TAX

Preparation for a pipe line tax ordinance as substitute for the existing law has been ordered by the Oklahoma City council. The new measure will impose an annual tax of 10 cents a rod upon lines on public property, with an original payment of $1 per rod for new lines as they are laid. Water lines will be exempt from tax and the $1 per rod tax will not be collected against lines laid prior to June, 1931.

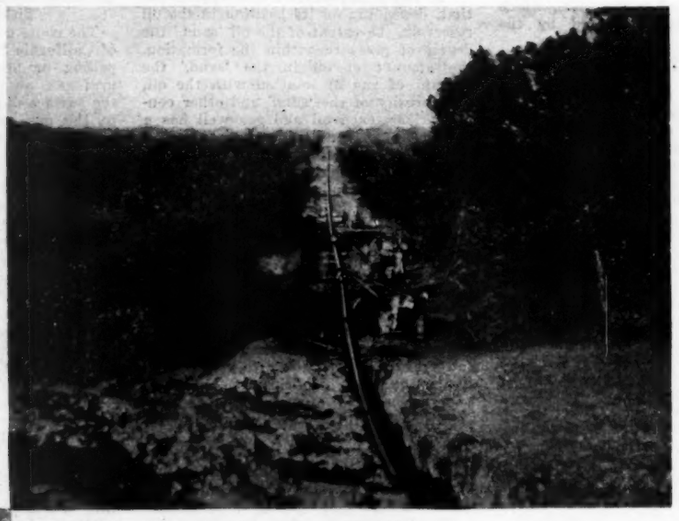
LINE TO KETTLEMAN

LOS ANGELES, Calif., Nov. 28.—Pacific Gas & Electric Co. is rushing its 7 miles of pipe line from its Potrero plant to a connection at the San Mateo County line with the main line from Kettleman Hills. The work is costing $350,000.

EXTEND SAN FRANCISCO LINES

SAN FRANCISCO, Calif., Nov. 28.—P.G.&E. is spending a total of $350,000 for the further extension throughout the city of its natural gas distribution facilities.

The WORLD'S LONGEST GASOLINE LINE



Great Lakes project involves 1400 miles

THE longest gasoline line in the world is that of the Great Lakes Pipe Line Company, recently completed, leading from northern Oklahoma points and El Dorado, Kansas, through Kansas City to Des Moines and branching from the latter north to the Twin Cities and east to Chicago. South of Des Moines another branch extends to Omaha. A total of 1400 miles is involved and 27,500 barrels per day is the estimated capacity. It has twenty-one pump stations at intervals of approximately fifty miles. Terminals and blending stations for Ethyl gasoline are located at Kansas City, Des Moines, Chicago, Twin Cities and Omaha. The system has its own telegraph and telephone lines from end to end and also teletype equipment like that used for the transmission of news to metropolitan newspapers.

Six oil companies united in the Great Lakes enterprise and are sharers in ownership of the line. Numerous firms of contractors were employed in laying the line and in building the pumping stations. Altogether this was one of the outstanding pipe line projects of the year and with additional extensions contemplated, the line will serve an unusually large area.

For this very important undertaking the pipe used throughout, was NATIONAL—

America's Preferred Line Pipe

NATIONAL TUBE COMPANY · PITTSBURGH, PA.

Subsidiary of United States Steel Corporation

NATIONAL PIPE

OPINION SUSTAINING CALIFORNIA LAW

(Continued from Page 17)

duced, or by pleading the conclusions derived therefrom, substitute the District Court of Appeal for the Superior Court in the determination of the facts, or of the law as addressed to the facts, which should properly be considered by the latter tribunal.

Legal Procedure Involved

It appears that in California, in accordance with the general conception of the province of the writ, prohibition is for the purpose of arresting the proceedings of any tribunal exercising judicial functions when such proceedings are without, or in excess of, jurisdiction. The writ of prohibition is not available as a substitute for an appeal from a court having jurisdiction.

As was said by the Supreme Court of California, in Truck Owners & Shippers, Inc., vs. Superior Court: "If the Superior Court has jurisdiction to entertain the action it has the power to define the right sought to be protected. * * * If the judgment of the Superior Court be incorrect, it may be reversed on appeal but not on prohibition."

After the decision of the District Court of Appeal, and before the denial by the Supreme Court of the state of a hearing in the instant case, the latter court passed upon the constitutional validity of the statute in question. That decision was made upon an application for a writ of supersedeas pending an appeal by certain codefendants of the appellants here (who were not parties to the appeal) from the above-mentioned injunction order.

The Supreme Court found no reason to interfere with the action of the Superior Court, on that appeal, affirmed the injunction order holding that under the statute the Superior Court had the power to determine what wastage of gas in the production of oil was unreasonable. The District Court of Appeal in the instant case had expressed the same opinion and accordingly decided that it could not interfere by writ of prohibition.

Validity of the Statute

It follows that, in considering and deciding federal questions in the prohibition proceeding, the District Court of Appeal must be regarded, as its opinion imports, as having determined merely that the statute was valid upon its face, so that the Superior Court had jurisdiction to entertain the injunction suit. It is that determination alone that we can now consider.

The District Court of Appeal overruled the contention that the statute was so uncertain and devoid of any definition of a standard of conduct as to be inconsistent with due process. The Supreme Court of the state, reaching the same conclusion, described the general condition in which oil and gas were found in California and the standard which the court considered to be established by the statute. After observing that courts were entitled to take judicial notice of the condition and development of the petroleum industry, and of matters of science and common knowledge, and referring to scientific reports, the Supreme Court said:

"For present purposes it need only be noted that oil in this state is found under layers of rock in a sand or sandstone formation termed a lentille or "lentil,' under pressure caused by the presence of natural gas within the formation. The layers of rock thus form a gas-tight dome or cover for the oil reserve. The oil adheres in the interstices between the sand particles. The natural gas may be in a free state at the top of the dome, but is also in solution with the oil, thus increasing the fluidity of the oil and the ease with which the oil is lifted with the gas in solution when the pressure on the gas is released by drilling into the oil 'sand.'

"It is estimated that only from 10 to 25 per cent of the total amount of oil deposited in a reservoir is ultimately recovered, depending on the natural characteristics of the reservoir and the methods employed in utilizing the lifting power of the gas. The importance of gas in the oil-producing industry has, therefore, become a question of great concern to the industry itself and to government, to the end that its function may be fully utilized without waste.

Output Computation

"It fairly appears on this application that, depending on its location in the oil reservoir, the extent of the oil 'sand,' the degree of pressure within the formation, the amount of oil in the 'sand,' the amount of gas in solution with the oil, the porosity of the 'sand' and other considerations, each oil and gas well has a best mean gas and oil ratio in the utilization of the lifting power of the gas and the production of the greatest quantity of oil in proportion to the amount of gas so utilized, and which may be computed as to each individual well to a reasonable degree of certainty and be regulated accordingly."

In view of these circumstances, the Supreme Court concluded that it might be said that there was an "unreasonable waste" of gas where it "has been allowed to come to the surface without its lifting power having been utilized to produce the greatest quantity of oil in proportion." It was such a waste of gas, the court said, that the legislature of California intended to prohibit. In support of this conclusion the court referred to the provisions of the statute. These provisions showed, in the opinion of the court, that the legislature had "plainly adopted the standard so expressed," that is, "that gas may not be produced, under existing conditions where the production thereof so greatly exceeds the market demand therefor, in quantities exceeding a reasonable proportion to the amount of oil produced."

Proportion of Gas to Oil

And, in explanation of its reasons for considering such a standard sufficiently definite, the court said that "because of the many and varying conditions peculiar to each reservoir and to each well, which will bear upon a determination of what is a reasonable proportion of gas to the amount of oil produced, it may be said that it would be impossible for the legislature to frame a measure based on ratios or percentages or definite proportions which would operate without discrimination, and that what is a reasonable proportion of gas to the amount of oil produced from each well or reservoir is a matter which may be ascertained to a fair degree of certainty in each individual case."

The statute is to be read with the construction placed upon it by the state court. And, so read, we find no ground for concluding that the statute should be regarded as invalid upon its face, merely by reason of uncertainty, so as to deprive the Superior Court of jurisdiction to consider the relevant questions of fact and to determine with respect to a particular field whether or not there has been the unreasonable waste of gas which the statute condemns.

Contention on Invalidity

The appellants make the further contention that the statute is invalid because of the provision of Section 8b that "the blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste." The State, in the exercise of its general power to prescribe rules of evidence, may provide that proof of a particular fact, or of several facts, or of several facts taken collectively, shall be prima facie evidence of another fact when there is some rational connection between the fact proved and the ultimate fact presumed.

The legislative presumption is invalid when it is entirely arbitrary, or creates an invidious discrimination, or operates to deprive a party of a reasonable opportunity to present the pertinent facts in his defense. In the present case there is a manifest connection between the fact proved and the fact presumed, and under the construction placed upon the statute by the state court there appears to be no deprivation of a full opportunity to present all the facts relating to operations within the field.

The question remains whether the statutory scheme of regulation, with the standard which it sets up under the construction of the state court, is on its face beyond the power of the state. The District Court of Appeal, in the instant case, approached this question by considering the correlative rights, under the law of California, of surface owners in the same field.

Title on Gas and Oil

The court concluded that under the law of California "on account of the self propelling or migratory character of natural gas, as well as oil," the owner of the surface did not have an absolute title to the gas and oil beneath, and could acquire such a title only when he had reduced these substances to possession. As justifying this opinion, the court cited the case of Acme Oil Co. vs. Williams where the Supreme Court of the state had said, with respect to oil, that it is "of a fluctuating, uncertain, fugitive nature, lies at unknown depths, and the quantity, extent and trend of its flow are uncertain.

"It requires but a small surface area, in what is known as an oil district, upon which to commence operations for its discovery. But when a well is developed the oil may be tributary to it for a long distance through the strata which hold it. This flow is not inexhaustible, no certain control over it can be exercised, and its actual possession can only be obtained, as against others in the same field, engaged in the same enterprise, by diligent and continuous pumping.

"It is the property of anybody who can acquire the surface right to bore for it, and when the flow is penetrated, he who operates his well most diligently obtains the greatest benefit, and this advantage is increased in proportion as his neighbor similarly situated neglects his opportunity." And the Supreme Court of the state, in its decision dealing with the statute in question, quoted this language and held that "the same rule would apply to natural gas."

Regulatory Powers of States

It was with that understanding of the law of the state that the District Court of Appeal considered the statute, taken as a whole, as one regulating and adjusting the coexisting rights of the surface owners in the same field, and accordingly sustained the statute as a valid exercise of state power against the contentions under the due-process clause. The court said: "It is the coexistence of these rights which authorizes the state to make use of its legislative power. When the rights of one impinge upon the rights of others the state may interpose for the purpose of adjusting and regulating the enjoyment of those rights."

The District Court of Appeal apparently thought it doubtful whether the state might restrict or regulate the production of oil or gas "on the theory of the public's interest in their natural resources," but deemed it unnecessary to decide that question in the present case. That court explicitly refused to accept the view that the statute "does not proceed upon the theory of correlative rights, but only upon the policy of conserving or preserving the common supply."

And, replying to the suggestion that the legislature was without authority to restrict the production of oil, the District Court of Appeal concluded its opinion with the statement that the record did not "indicate that the temporary injunction was founded upon such a theory. Nor are we determining that the act attempts to confer upon the court any such power. Rather we are convinced that a proper construction of the enactment confines the authority within the limits of enjoining the production of gas when in excess of the reasonable proportion to the oil for the particular field involved, when not conveniently necessary for other than lifting purposes."

While this was the basis of the decision of the District Court of Appeal, the appellants insist that, in the subsequent decisions upon the appeal from the injunction order of the Superior Court, the Supreme Court of the state has taken a broader ground and has upheld the statute as one designed to protect the public interest in the conservation of natural resources. We do not understand, however, that the Supreme Court in taking that view denied the operation of the statute as a safeguard of the coexisting rights of surface owners.

Right to Determine Wastage

On the contrary, the Supreme Court, in its second decision affirming the injunction order of the Superior Court, summed up its conclusions in these words: "We reiterate that the legislation in question has lawfully vested in the Superior Court the power to determine what wastage of gas in the production of oil is reasonable or unreasonable. Whether such wastage be reasonable or unreasonable is a question of fact and should be determined in view of the necessity of one landowner to make productive use of his parcel, in view of the equal right of the adjoining owners not to be deprived of correlative production from their parcels and in view of the right of the public to prevent the waste of that which cannot be replaced." If the statute be viewed as one regulating the exercise of the correlative rights of surface owners with respect to a common source of supply of oil and gas, the conclusion that the statute is valid upon its face, that is, considered apart from any attempted application of it in administration which might violate constitutional right, is fully supported by the decisions of this court.

In that aspect, the statute unquestionably has a valid operation, and it can not be said that the Superior Court was without jurisdiction to entertain the suit in which the injunction order was granted. That was all that the District Court of Appeals determined in the judgment now under review. It is not necessary to go further and to deal with contentions not suitably raised by the record before us. Constitutional questions are not to be dealt with abstractly. Having jurisdiction of the suit the Superior Court had authority to take steps to protect the subject matter of the action pending the trial on the merits.

The injunction order stated that to be its purpose. Upon the trial, all questions of fact and of law relevant to the application and enforcement of the statute may be raised and every constitutional right which these appellants may have in any aspect of the case as finally developed may be appropriately asserted and determined in due course of procedure.

Judgment affirmed.

COMPANIES MAY SAVE CHARGES FOR SERVICE

It is reliably reported that a news service company doing business in Boston, Mass., has recently sent out at least one letter to an oil company, and it is assumed that it has sent more to other companies, soliciting orders for a typewritten copy of a report made by Government officials on the subject of Hydrogen Sulphide Content of the Gas in Some Producing Oil Wells. This service is offered at $10.

It seems quite safe to assume that the report to which this news service company refers is the recently issued Report of Investigations No. 3128 of the U. S. Bureau of Mines entitled "Hydrogen Sulphide Content of the Gas in Some Producing Oil Fields," by John M. Devine and C. J. Wilhelm, published in September, 1931, and available from the Bureau of Mines, Bartlesville, Okla., or Washington, D. C. without charge.

The laws of the United States prohibit copyright of Government publications but they are available to all interested either free or at a very nominal cost and there does not seem any reason why those interested in securing such information should pay some outside service for making typewritten copies of the Bureau of Mines publications.

CELEBRATES HUNDRED YEARS

CHATHAM, Ontario, Nov. 28.—Mrs. William McKitrick recently celebrated her 100th birthday at Crystal City, Manitoba. Her husband and his brothers, as young men, were pioneer drillers and oil producers in the Petrolia Field.

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Wells Indicate Two New Coastal Fields

Location on Large Acreage Block Eliminates Competitive Drilling. More Activity Being Shown in Various Pools

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Nov. 30.—While two new fields are due to be opened on the Gulf Coast, judging from showings in recent drill stem tests, the prospective discovery wells in these respective areas had not been brought in at the close of the past week and otherwise there were no developments of especial importance during the week. The period, however, was marked by the starting up of a number of additional operations in scattered fields further reflecting the trend toward increased activity in this district.

The two wildcats showing for the opening of new fields, one in coastal Texas and the other in southern Louisiana, have been standing cemented but are scheduled to drill plugs and test early this week. Humble Oil & Refining Co.'s No. 1 O'Connor, John Keating Survey, in the extreme northeastern end of Refugio County, which probably is the most interesting of the two, has 7-inch casing cemented at 4,123 feet. In a drill stem test of sand at a total depth of 4,155 feet in this wildcat two weeks ago, oil rose 800 feet in the hole in 15 minutes as reported in last week's issue of The Oil and Gas Journal.

The other wildcat, which is showing for a small gas well, is Louisiana Gas & Fuel Co.'s (United Gas Public Service Corp.'s) No. 2 Minor, Section 3-18s-16e, Terrebonne Parish, Louisiana, which has been standing with 10-inch casing cemented on sand topped at 3,878 feet. Through an open end tester in sand at a total depth of 3,882 feet, this well showed for an estimated 2,000,000 feet of dry gas.

No Competitive Drilling

As each of these wildcats is on a large block owned entirely by these respective companies, opening of new fields on each will not result in a competitive drilling campaign. Humble's block consists of between 30,000 and 35,000 acres. In neither instance is the well located so as to necessitate offsets.

Completions on the coast the past week were few and far between. Barbers Hill added one new well in The Texas Company's No. 7 Wilburn, and one workover. The former came in flowing at the rate of 500 bbls. daily from sand at 4,422 feet but has shown a steady increase to above 1,400 bbls. daily. This well is located on the east side of the dome and is in the shallow Miocene sand play which is resulting in the rapid proving up of a new line of good production just inside the circle of deep Oligocene sand wells. Sun Oil Co.'s No. 3 Smith, the workover completion at Barbers Hill, was brought in flowing 60 bbls. net oil from sand at 5,315 feet. It is on the west flank and formerly was completed last August as a small well at 5,323 feet.

Barbers Hill Active

Barbers Hill continues the most active spot on the Gulf Coast with 18 rigs running at present. The majority of these are engaged in the line fight drilling play which has followed the opening several months ago of the new Miocene sand close up on the dome under the salt on the east side. As the deep sands have proved an almost continuous line of production around the dome in their development which has been under way since 1929 so it is probable that the shallow Miocene sand also eventually will be carried all the way around inside the deep wells, this assuring Barbers Hill steady development for a long time to come. The sand already has been found in scattered wells on the north and south sides as well as in the east side play and linking of these wells and filling in the gaps will be carried on steadily. Nat Hunter Producing Co.'s (Humphreys Corp.'s) No. 3-B Barber, located on the north side of the dome, is in the shallow sand at 4,695-4,719 feet and is preparing to set screen after drilling plug. Completion of this well will mark a westward extension of production on the north side.

Other completions of the week included Vinton Petroleum Co.'s No. 10 Gray, Vinton, Calcasieu Parish, Louisiana, and Rio Bravo Oil Co.'s No. 122-A Cotton, Saratoga. The former set one joint of 3-inch screen at 3,420 feet and flowed 120 bbls. of pipe line oil. The Saratoga well, one of a series of small, consistent shallow producers being brought in by Rio Bravo Oil Co. on its Cotton lease, made 20 bbls. at 542 feet.

The 7,400-7,500-foot sand, in which three wells have been completed southeast of Jennings Field in recent years, continues the deepest producing horizon on the Gulf Coast following the failure of Yount Lee Oil Co.'s No. 10 Housierre-Latrielle, in the same area, to make a well in sand at a total depth of 7,825 feet. A total of 58 feet of 5-inch screen was set at that depth. The well was bailed dry and now screen is being cut out preparatory to deepening the hole.

Pierce Junction

Pierce Junction, just south of Houston, is witnessing another of its periodical returns to activity with eight rigs now running. The latest entry to the list of operators there is Humble Oil & Refining Co., which is rigging up for No. 1 C. G. Hooks, located 904 feet north from the southwest corner along the west line of the lease and 396 feet east at right angles, in the James Hamilton Survey No. 52. This is an east offset to Gulf Production Co.'s No. 33 Taylor, completed two weeks ago. These wells are on the extreme south flank of the dome, where production has been extended gradually eastward. The Humble location, the farthest east yet made on that flank, is still about three-quarters of a mile from nearest production and development on the east flank of the dome, between which is the only remaining important gap of undeveloped territory in the line of production around that dome.

On the southwestern end of production on the east flank of Pierce Junction, Gulf Production Co. has made location for No. 34 Taylor and has moved on it the rig from No. 33. No. 34 is 350 feet west

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Development of the Ellsworth Arch

Peculiar Conditions Require a Careful Drilling of That Silicious Lime Area. Two Meetings in December

By L. G. E. Bignell
Petroleum Engineering Editor

For some time past there has been a conservative well-planned drilling campaign going on in central western Kansas in several counties located along what is now referred to as the Barton or Ellsworth arch located principally in Barton, Ellsworth, Rice and Stafford Counties, Kansas, and a number of tests have been completed about half of them dry holes while the others have opened up what appear to be a number of small local pools.

The geology of this region has been covered by Hugh W. McClelland, in The Oil and Gas Journal of October 23, 1930, which is abstracted as follows:

"The first recorded evidence of beds of pre-Mississippian age in Kansas was in 1908. These range in age from pre-Cambrian to Devonian, but do not crop out in the state. Wells drilled for oil since 1925 have furnished much information regarding the character and extent of these older Paleozoic rocks. Their present areal distribution is the result of a long history of repeated earth movements of regional extent. The two most important movements occurred between Devonian and Mississippian and in post-Morrow time. The duration of erosion periods was progressively greater toward the northwest."

The new oil fields are variously referred to as being located upon the Barton and also upon the Ellsworth arch. Both statements are to some degree correct for it is now believed that the Barton arch lies over the Ellsworth arch the former extending in a northwest-southeast direction while the Ellsworth arch has a general trend from north to south. In other words the earlier folding in this general area caused the formation of the Ellsworth arch and then later earth movements with forces coming from another direction caused the upper or Barton arch to be formed and it is upon that old surface that the new pools are now being found.

Arbuckle Limestone Production

Mr. McClelland states that "the Arbuckle limestone has been generally known as the 'Siliceous lime' in Kansas. It can be traced northward from Oklahoma by means of well-log correlations so that there is no doubt of its continuity. It is primarily a dolomitic limestone and is only locally siliceous. Several other formations are more siliceous, notably the Mississippian. The term 'Siliceous lime' is therefore inappropriate and misleading and it is suggested that it be dropped."

Placing the producing horizon in the Arbuckle limestone makes it possible to make general comparison with other fields that have been productive from that formation, notably Garber and Oklahoma City, Okla. There is a difference in the general character of the pools so far developed in central western Kansas along the Barton arch because there it seems that the oil has accumulated in comparatively small pools in this great area over 150 miles long that is now being prospected.

Subsurface data from various wells drilled in central western Kansas show that there is a great deal of difference in wells that are close together for in one well production will be found while in other holes the Arbuckle lime is picked up at the same approximate depth below the sea level datum line but only contains water. It is therefore difficult at this time to make any definite forecast of probable production in any hole that may be drilled, for while the upper formations may log correctly as compared with producing well logs when the Arbuckle lime is reached it may not be a productive formation in that spot.

Every Well a Wildcat

This lack of detailed knowledge of the area has caused the producing companies to proceed slowly with their wildcat drilling, for in reality practically every well drilled is a wildcat now, and until a great deal more is known of the geology of that portion of Kansas there will be a tendency to explore it carefully and make investment of the least amount of money possible.

Such wells as have been opened up seem to indicate that they are producing from pools comparatively small in area and this oil has been accumulated in the upper portion of the Arbuckle lime and the producing portion of this formation is only from 10 to 15 feet thick. Under the oil there is found water which has probably been the motive force that has caused the accumulation of the oil in these small local highs.

Arch Not Definitely Known

The axis of the Barton arch is still not definitely known, but from the data so far accumulated from well logs it would appear that it is a very broad structure and, while exposed to weathering, has been eroded much the same as limestone hills are weathered on the surface now and it therefore has on its surface numerous small local high spots as well as corresponding low places. They do not appear to be of the same type as those of Garber and Oklahoma City as to extent or oil accumulation, and until more wells are drilled it will be difficult to definitely map the extent of the several pools thus far found or be certain that they are connected one to the other.

Care Needed in Development

With this uncertainty existing in regard to the area, and with the economic factor in prospecting and producing of oil to be seriously considered at this time due to the low price being paid for crude oil, it seems best for all parties concerned that this new work be carried on with the greatest possible care and consideration for drilling and development costs. It is estimated that the average well in the area costs about $35,000 to drill and at the present price being paid for this grade of oil will require the recovery of at least 43,200 bbls. to equal the cost per well. This does not take into account any royalty, pipe line charges, taxes, or lifting costs.

With better oil prices the companies will be inclined to do more drilling because the cost of the wells as represented by oil recovered will require a less number of barrels to pay out. Some companies have already spent several hundreds of thousands of dollars in the area with very little production resulting and they desire to feel their way

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Seminole Makes Potential Estimate

Leasing Active in Oklahoma City Area. Carr City Pool Now Second Most Active District in State. Beckham County Wells Being Plugged

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

The production of oil from the State of Oklahoma may be reduced during the winter months from the estimated allowable of 546,000 bbls. to bring the production in line with the market demand. However, the operators in the State are holding the daily average at reduced levels and after the potential tests on all wells in the Greater Seminole area and the Oklahoma City Field are completed the daily average production of the State may drop below 500,000 bbls. For the week ending November 28, the State averaged approximately 523,300 bbls. a day, a decline of approximately 35,000 bbls. from the previous week.

The taking of potentials on wells in the Oklahoma City Field is completed with the exception of a few wells, and classification of producers making water in the Arbuckle lime and lower Simpson areas is nearing completion by the umpire's staff. In the Arbuckle lime area 42 wells have been given the 250 bbls. daily exemption because of water, and 47 wells in the lower Simpson zone were found to be making more than 3 per cent water and in the 2,000 bbls. adjusted potential class.

Potential tests on wells in the Greater Seminole area are expected to be completed by the first of December, but it may be another week before the corrected figures are available.

New Work in City Field

During the week permits were granted by the Oklahoma City commission for four wells inside the city limits, in the Oklahoma City Field, all located in the north end. Phillips Petroleum Co. will drill on Blocks 8 and 16 of the Walnut Grove Addition. Anderson-Kerr will drill a test at 10 East Frisco Street. W. B. Skirvin and B. V. Whitfield were granted a permit to drill in Block 19 of Phillips-Meads Addition.

The Denver Producing & Refining Co. has petitioned the Planning Commission to extend the U-7 drilling zone to the north. Whether the sentiment on extending the drilling zone to the north has changed enough to permit the inclusion of Riverside Park in the drilling zone will be determined at the commission's meeting.

Oklahoma City may receive an increase in its revenues of more than $200,000 by permitting the drilling of wells in the park, but both the city council and the commission are on record in opposition to further zone extensions. The officials believe that if drilling is permitted in Riverside Park it may lead to other requests for extending the drilling zone. The Phillips Petroleum Co. now has a producing well within 280 feet of the park. This is the main reason for the request to allow the drilling of wells inside the city property.

During the week two new producers were completed on the north and west side of the Oklahoma City Field, bringing the total of the field to 847 wells. Ocate Oil Co.'s No. 1 Smith, NE cor. NW Section 15-11-3w, was allowed to clean out for 35 minutes and was shut in. It was estimated at 2,500 bbls. an hour. The gas was estimated at 35,000,000 feet a day. The well was completed with 9-inch casing landed at 6,347 feet, with the total depth 6,525 feet.

Wilcox Oil & Gas Co. and others' No. 1 Buxton, SW cor. NE NW Section 3-11-3w, on the north side of the field, was bailed down and cleaned out and then shut in. No estimate was made of the production. The 9-inch casing was landed at 6,317 feet and the total depth was 6,449 feet.

Adjusted potentials on wells in the Oklahoma City Field were announced on the following wells, the adjusted potentials being one-third of the 24-hour gauge:

Company and well—	Bbls.
Skelly Oil Co., No. 1 Harper-Turner.	18,837
Phillips Pet. Co., No. 1 Unruh.....	14,930
Phillips Pet. Co., No. 1 Clayton.....	7,763
I.T.I.O., No. 8 B. Johnson.....	222
I.T.I.O., No. 3 Lawrence Place.....	12,086
I.T.I.O., No. 4 View Point.....	14,035
I.T.I.O., No 3 Button.....	73
Wirt Franklin, No 4 Theimer.....	683
Wrightsmith Oil Co., No. 2 Smith...	136

Phillips Petroleum Co.'s No. 1 Dehn, NW cor. NW SW NE, Section 3-11-3w, flowed 4,389 bbls. of oil the first hour and 23 minutes, putting the well in the 75,000 bbls. a day class. The gas was estimated at 65,000,000 feet a day. The 9-inch casing was landed in the well at 6,323 feet and the total depth was 6,447 feet.

A new gas well was completed in the Oklahoma City Field which is believed to be one of the largest gas wells ever completed in the State. Anderson-Prichard Petroleum Corp. and Plains Petroleum Co.'s No. 1 Little, S half NW SE NE, Section 10-11-3w, was bailed in and cleaned out to show an estimated 231,000,000 feet of gas a day. In 37 minutes the well made 367 bbls. of gasoline, and was then shut in. The 6-inch casing was landed at 6,312 feet and the total depth is 6,389 feet. The owners believe the well proves a large gas reserve in the upper part of the sand, since other tests in the vicinity have been drilled much deeper and completed for large oil wells.

December Allowables at 4.5 Per Cent

The umpire's staff in figuring the allowables for the month of December has placed the allowable at 4.5 per cent of the potential. While taking the potentials it was found that more than 20 wells in the field refused to flow. During the first 22 days of November production from the Oklahoma City Field totaled 4,011,233 bbls. and the pipe line shipments totaled 3,858,079 bbls. The difference is being held in the field storage. On November 1 the amount of field storage was reported by the umpire's office as 508,852 bbls., while the amount on November 22 was only 153,154 bbls.

Oklahoma will fall below its average drilling record during the first 10 months of the year, due to curtailment of development operations. But since the first of November all field operations have shown a slight increase.

Leasing activities in the State have been on the increase during the past month and it is believed the new acreage being secured almost balances that which is being surrendered in the wildcat areas in the State.

The first oil and gas lease sale held by the State School Land Commission since last March was held November 25. W. C. McBride, Inc., and Mid-Kansas Oil & Gas Co. purchased two leases each in Section 16-15-4, Lincoln County. No bids were received on three tracts in the same section and a bid of $7.50 an acre was rejected.

W. C. McBride, Inc., obtained a lease on 80 acres in the E half NW, Section 16-15-4, for $1,200 and on the E half SW, Section 16-15-4, for $1,600. The Mid-Kansas Oil & Gas Co. paid $2,208 for the W half NW, Section 16-15-4, and paid $1,808 for the W half SW, Section 16-15-4.

One of the few purchases of oil property during the year was the purchase of Seminole production by C. L. McMahon, an independent operator, of the Hilton Phillips' interest in six leases with approximately 138 bbls. a day in the Konawa Pool in southern Seminole County. The purchase gives Mr. McMahon the full operating control of two of the properties located in NW SE, Section 20-6-6, and NE NE, Section 29-6-6, and approximately half interest in the other four properties in the S half NE, Section 20-6-6; NE SE, Section 20-6-6; NW NE, Section 29-6-6; SE NE, Section 29-6-6 Interested in the last tracts with Mr. McMahon are John Droppleman and E. L. Harris.

Leasing Activity Increases

The only active leasing in the State is believed to be in the territory north of Oklahoma City. Leasing activities during the week came within the corporate limits of the city on the north and northwest portions, where city lots and blocks are being assembled. The leasing development started near the Carter Oil Co. block adjoining the city limits on the northwest and has spread south to Belle Isle View and to West Thirty-ninth Street.

The Plains Petroleum Co. has been assembling considerable acreage in the NW, Section 20-12-3w, which is in the Military Addition. Stahl Petroleum Co. has leased Block 30 in the Brooklyn Addition in the SW, Section 13-12-3w. Different companies have been taking leases in the Belle Isle View Addition in the SW, Section 7-12-3w.

On the southwest and west edges of the Oklahoma City Field where the next drilling campiagn is expected to start and at least 80 wells may be drilled leasing continues active. The leasing is mostly in small tracts by independent operators and this is expected to result in a town lot drilling campaign. Some of these lots have been secured by the following operators: W. H. Clement has leased Lots 36 to 40 in Block 7 of Carney Heights; J. R. Phelan has taken leases on Lots 9 to 25 in Block 3 of Pryor's Elm addition and 5 to 7 in Block 17 of South Park Addition; L. H. Prichard is assembling leases in Block 72 of Shields addition; G. R. Pulley and others are leasing in Block 23, Oliver Park Addition; T. K. Quillin has been leasing in Block 2 of the J. W. Craig Addition; D. A. Dodson has leased considerable acreage in Blocks 5, 20, 21, 23 and 24 of Walnut Grove Addition; H. G. Fulks has leased lots in Block 71 of Shields Addition; and Harrell-Davis Oil Co. has leased Block 4 of Earps Addition.

Scattered leasing has been taking place in the county near the townsite of Edmond. The Mid-Kansas Oil & Gas Co. has surrendered a group of leases at Nicoma Park, east of the Oklahoma City Field, where the company has one producing well and three dry holes. Of the original 10,000-acre block only approximately 25 per cent remains under lease at the present time. Near Bethany where a deep dry hole was completed about a year ago several companies have been surrendering leases.

Seminole Potential May Reach Estimate

State Umpire Ray M. Collins states that the Greater Seminole area is expected to make its estimated potential production which was placed at 305,000 bbls. a day at the last hearing before the Corporation Commission. The commission placed the allowable of the field at 155,000 bbls. a day, which is 50 per cent of the potential and at that time some of the Oklahoma City operators were doubtful that the Greater Seminole area could make its estimated potential of 305,000 bbls. a day. The Corporation Commission ordered new potentials of the entire area beginning November 1, and it is expected the potentials will be completed by December 1.

Indications from those pools that have been gauged are that the older areas in the district will show an increase over the estimated gauges while the flush areas declined. A storm throughout the areas during the past week delayed gauging of wells and in the lowlands of the areas the rivers and creeks have flooded others. In the Allen Pool, potentials are to be retaken on seven leases to satisfy

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WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location— Remarks:

Smith Brothers' No. 1 Forbes, SE cor. NW NW, Sec. 12-27-11w ..... S.D. 1,333 ft.

J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w .. S.D. 5,502 ft.

ATOKA COUNTY

Campbell's No. 1 Baird, NW NE SW Sec. 31-1-13 ..... Rig.

Edgerton Edwards' No. 2 Rowland, SE NE NW Sec. 6-1-15 ..... Rig.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w.. T.D. 2,344 ft; plugged back to 1,890-1,900 ft; 1,500,000 ft. gas.

Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w.. Waiting on cmt. to set 430 ft.

Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW Sec. 17-2-22w ..... S.D. 2,550 ft.

White et al's No. 1 Green, SW cor. Sec. 34-10-24w ..... S.D. 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w ..... S.D. 5,115 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w .... S.D. 1,115 ft.

CHEROKEE COUNTY

La Piere et al's No. 1 Woods, C SE SE Sec. 27-17-21 .... S.D. 1,196 ft.

COAL COUNTY

Radial Oil Co.'s No. 1 McGraw, NE NW Sec. 2-1s-8 .... S.D. 1,165 ft.

McCraw Oil Co.'s No. 1 Ward, NE SE Sec. 35-1-8 .... Drlg. plug; showing 2,000,000 ft. gas 1,765-1,846 ft; mudded off gas; S.D.; rig moved.

Whitney et al's No. 1 Miller, SE NE Sec. 10-2-8 ..... S.D. 760 ft.

COMANCHE COUNTY

G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-2-9w .... S.D. 1,450 ft.

LE FLORE COUNTY

H. E. Dowd et al's No. 1 Unknown, SE NE Sec. 17-3-32.. Fishing 1,112 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w.. S.D. 5,850 ft.

GARVIN COUNTY

Malarnee et al's No. 1 Phillips, NE SW SE Sec. 24-2-2w.. S.D. 4,830 ft.

GREER COUNTY

Dovell et al's No. 1 Capell, NW cor. Sec. 1-7-22w ..... 5,000,000 ft. gas 1,455-65 ft; T.D. 1,760 ft.

French's No. 1 Murphy, SW NW Sec. 23-7-21w ..... S.D. 1,645 ft.

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Kansas Future Oil Supply Promising

Construction of Pipe Line Outlets Continues. Public Service Commission Explains Recent Order Limiting Wells to 40-Acre Units

By W. A. Spinney
Staff Correspondent, Kansas Fields

Wildcat tests finding production along the Ellsworth or Barton Arch have definitely proved this area to be one of the most promising in Kansas for future production. The development of this district is expected to be gradual and orderly. The existence of this field was indicated during the past year when more than a dozen tests found production in the Silicious lime. The State's production is steady, averaging 104,700 bbls. a day for the week ending November 28, an increase of approximately 300 bbls. over the previous week.

Activity on the part of the purchasers of crude oil in the central western part of the State has brought about the construction of a number of gathering lines and loading racks. Some express the opinion that the purchasers prefer the high gravity crudes available in Stafford, Rice, Ellsworth and Barton Counties over the McPherson County crude where the demand has fallen off.

The increased demand for the higher gravity crudes has caused several companies to open wildcat wells that have long been shut in because of the lack of a pipe line outlet.

One of the recent wildcat wells to be tested is Hinkle and Cress and others' No. 1 Sharpe in Section 13-20-10w, Rice County. It was tubed during the week, but owing to litigation was shut down immediately. The production is from the Silicious lime at a total depth of 3,322 feet. The oil tested 48 degrees gravity, corrected, from a sample at the well.

The Stanolind Pipe Line Co. is building 3½ miles of 8-inch pipe line from the Schurr Pool to this well. The line is expected to continue eventually north to Ellsworth County, where it will connect with other wildcat wells now shut in. The pipe has been strung and as soon as the weather permits the company will complete the line. A pump station is to be installed at the Schurr Pool, where the Stanolind Pipe Line Co.'s new line will connect with the Prairie Pipe Line Co.'s trunk line.

Commission Explains Order

The Kansas Public Service Commission made a statement regarding its recent order limiting the drilling of wells, one to each 40 acres, in four counties in the central western part of the State. The commission states that all operators not satisfied with the policy are expected to make their statements at the next hearings of the commission to be held at Lyons, December 10, and at Great Bend, December 11.

The commission states that the first thing considered in issuing orders is the welfare of the public. The interest of the producer, the landowner, the royalty owner, refiner or marketer is secondary. None of the commissioners has a financial interest in the oil business.

The commission has been subjected to both praise and criticism for issuing the temporary order relative to the spacing of wells, one on each 40 acres instead of one on each 10 acres, as has been the usual drilling practice.

Many companies and individuals have made large investments in Kansas, especially in the central western part of the State. They have seen other areas drilled and the oil market, for themselves and their landowners, wrecked by excessive and competitive drilling in times when additional supplies of oil were not needed.

The commission states that it wishes to encourage investing in oil lands in Kansas by large and small companies and individuals and at the same time see an orderly, nonwasteful and profitable development program instituted and continued. It adds:

"We further realize that the central western part of the State contains what is believed to be one of the largest acreages of proven and semiproven oil lands in the United States. This area, on account of existing leases, must be drilled within a few years and threatens to produce more oil than can be marketed without waste and destruction of a fair market price."

The area which was restricted by the order includes Stafford, Rice, Barton and Ellsworth Counties where more than a dozen wildcat wells have been completed within the last 18 months which were estimated to be making from 1,000 to 4,000 bbls. a day. All of these wells were shut in until recently awaiting a pipe line outlet.

Ritz-Canton Production Extended

The extension well in the Ritz-Canton Pool, in McPherson County, Darby Petroleum Corp.'s No. 4 Kaegi, SE cor. NE NE, Section 20-19-1w, on the extreme northeast edge of the field, is standing full of oil. It is the first Viola lime test to produce in this section of the pool. The Viola lime was found from 3,367-71 feet and is over a mile north and east of the nearest Viola well. Tankage was being erected and the well is expected to make a production test in a few days.

With the finding of production in the Viola lime in the northeastern part of the Ritz-Canton Pool, it is expected that a large number of twin wells will be started. The present wells are completed as gas wells in the chat formation and it is believed these will be allowed to produce gas only.

In the Ritz-Canton Pool some of the older producing wells are being shot to increase their output. W. C. McBride, Inc.'s No. 3 Whitright, C NE SE, Section 30-19-2w, was given a 10-quart shot and increased its gas production approximately 1,000,000 feet. The well was drilled to supply gas for fuel to drill the other tests on the lease. Before the shot the well was making around 2,900,000 feet a day from the chat at 2,908-48 feet. A gauge after the shot shows the well to be making 3,800,000 feet a day.

The Texas Company's No. 1 Munn, NW cor. NE, Section 12-20-2w, in the southwest edge of the Ritz-Canton Field, was drilling deeper to the Viola lime. The test is an old producing well in the chat formation at a total depth of 3,040 feet. If production is found in the test it will extend the Viola lime production approximately a mile to the southwest. The test was one of the early producers in the field, being completed about two years ago. The nearest Viola lime producer is about a mile to the northeast.

No Change in Allowables

L. R. Pickrell, umpire and agent for the Kansas Public Service Commission, states that on November 19 the commission issued orders that the production of the Ritz-Canton Pool should not exceed 17,500 bbls. for the pipe line outlet for the month of December. The umpire expects there will be little change in the percentage of allowed production on Viola lime wells in the field, and the commission felt it would be unnecessary to take new potential tests and has ordered that no gauges be taken. Several recommendations regarding chat well potentials have been submitted to the commission by the advisory committee and the umpire, and the commission is now considering these recommendations.

The commission has issued orders continuing the 20 per cent allowable of the daily potential production after December 1 in the Schurr Pool, near Raymond, in Rice County. The order states that the 20 per cent allowable will remain in force until such a time as the present order of the commission might be changed.

Operations Show Increase

Drilling operations in Kansas were gradually showing an increase in most sections of the State outside of the old shallow areas. In producing areas of Cowley County several operations are now drilling deeper. This has become a general practice in McPherson County also. The opening of deeper producing horizons has been common in Russell and Sedgwick Counties during the past year.

In the Eastborough Pool, in Sedgwick County, 13 deep sand wells have been completed and four others are expected to reach the pay horizon in a few days. Of the four drilling tests, the Derby Oil Co.'s No. 2 Eastborough, SE cor. SW NE Section 19-27-2, is the first to show oil. It made 241 bbls. of oil in a six-hour test, producing at the rate of 40 bbls. an hour from the pay horizon at 3,230-37 feet. Fisher & Lauck's No. 8 Trustee, NW cor NE SE, same section, flowed 10 bbls. of oil an hour and is to be tubed and pumped. The pay was found at 3,233-47 feet. E. B. Shawver and others' No. 1 Soukup, in Section 19-27-2, has the pay at 3,264-66 feet, where the well made 25 bbls. an hour. It is the fifteenth deep sand producer in the Eastborough Pool, which is a residential section of Wichita, where several residences have been erected and 40 oil wells have been drilled. The area covers approximately 2 miles north and south and a half mile east and west.

Magnolia Petroleum Co.'s No. 1 Wheeler, SW cor. SE NE Section 19-27-2, an old chat well drilled deeper to the Viola lime pay horizon, was being tubed without a swabbing test and is estimated to be a 400-bbl. producer from the pay at 3,241-47 feet.

Market Outlets for Wildcat Wells

Additional outlets for the wildcat wells in the central western part of the State are being constructed by the Stanolind Crude Oil Purchasing Co. A loading rack is being built by the company to handle the production from Alyward and others' No. 1 Stratman, SE cor. NW, Section 1-17-10w, Ellsworth County wildcat, which is estimated at 2,000 bbls. a day from the Silicious lime at 3,255-71 feet. The other well that will be connected to

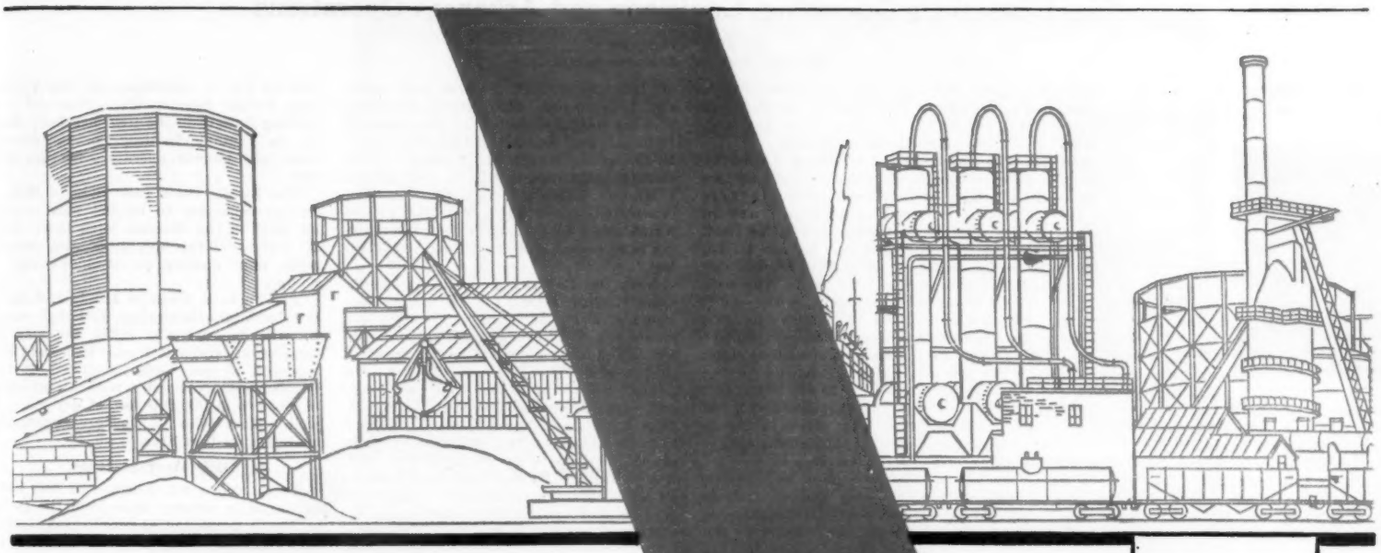
(Continued on Page 72)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Syndicate Oil Co.'s No. 1 Boretz, NW SE SE, Sec. 3-18-12w	Drlg. 3,205 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE, Sec. 16-19-14w	Show oil 3,226-28 ft.
McCool et al's No. 1 Tsern, NW SE NE, Sec. 12-20-11w	Show oil 3,313-29 ft.; pumped 408 bbls. 18½ hrs.
CHASE COUNTY	
Borden et al's No. 1 Atkinson, NW SE, Sec. 18-18-7	Abandoned 50 ft.
CLAY COUNTY	
Crystal Oil et al's No. 1 Tivier, SW cor., Sec. 19-8-2	S.D. 2,700 ft.
COWLEY COUNTY	
Slocum et al's No. 1 Union National Bank, C SW SW, Sec. 16-35-4	S.D. 1,950 ft.
DICKINSON COUNTY	
Severs et al's No. 1 Lavengood, NE SW, Sec. 13-13-2	S.D. 4,546 ft.
ELLSWORTH COUNTY	
Alyward et al's No. 1 Stratman, SE NW SE, Sec. 1-17-10w	Silicious 3,255-71 ft.; 117 bbls. 2 hrs.; shut in; estimated 2,000 bbls.; no pipe line connections.
Aladdin Pet.'s No. 1 Stoddenberg, C SW, Sec. 22-16-10w	Silicious lime 3,332-47 ft.; estimated 1,500 bbls. a day; shut in.
FINNEY COUNTY	
National Ref. Co.'s No. 1 Wells, C SW, Sec. 13-23-30w	Drlg. 1,910 ft.
HARVEY COUNTY	
Liggett et al's No. 1 Davis, SW SE NE, Sec. 7-24-1	S.D. 1,505 ft.
J. P. Flannigan's No. 1 Sheridan, C SW, Sec. 32-22-1	Drlg. 3,990 ft.
KINGMAN COUNTY	
Skelly Oil Co.'s No. 1 Miles, NE cor., Sec. 30-27-10w	1,636-40 ft. 2,000,000 ft. gas; at 2,005-20 ft., 6,000,000 ft. gas; at 1,133-42 ft., 3,000,000 ft. gas; showing oil 3,385 ft.; T.D. 3,441 ft.; S.D. estimated at 600 bbls. a day.
Panhandle Drlg. Co.'s No. 1 Wetherall, C SE NW SW, Sec. 20-28-10w	Rig.
MORTON COUNTY	
Hydraulic Oil Co.'s No. 1 State Land, NW SE, Sec. 22-34-43w	T.D. 3,640 ft.; temp. abd.
MORRIS COUNTY	
Allender et al's No. 1 Wycoff, C SW SE, Sec. 5-17-7	S.D. 105 ft.
Urschel et al's No. 1 Bersuch, NW SE NW, Sec. 10-17-7	Fishing 915 ft.
Hankerson et al's No. 1 Cessman, SW SE, Sec. 24-16-9	S.D. 2,625 ft.
NORTON COUNTY	
Richards et al's No. 1 Colby, Sec. 17-4-21w	Rig.
OSAGE COUNTY	
Briggs & Smith's No. 1 Wood, SE NW, Sec. 21-14-15	S.D. 2,053 ft.
RAWLINS COUNTY	
J. G. Durham et al's No. 1 Weaver, SE cor., Sec. 3-2-35w	S.D. 3,925 ft.
RICE COUNTY	
Cress et al's No. 1 Sharp, SE NE, Sec. 13-20-10w	Show oil 3,107-15 ft.; Silicious 3,-330-36 ft.; estimated 1,500 bbls.; shut in.
BUSH COUNTY	
Dewey & Mitchell's No. 1 Greenawalt, C SW, Sec. 17-19-16w	Show of oil in Conglomerate 3,835-80 ft.; plugged back to 3,825-40 ft.; estimated 150 bbls.; S.D.
SALINE COUNTY	
Twin Mounds Oil Co.'s No. 1 Weis, C W½ NE NW, Sec. 20-13-4w	S.D. 2,710 ft.
SHERIDAN COUNTY	
Flo et al's No. 1 Shoemaker, SE SW, Sec. 27-7-26w	Drlg. 3,740 ft.
STAFFORD COUNTY	
Rosenthal, Stanolind and Amerada's No. 1 Gray, C NE, Sec. 11-24-31w	S.D. 3,560 ft.
STEVENS COUNTY	
Argus Prod.'s No. 2 Christopher, C NE, Sec. 10-33-39w	S.D. 5,521 ft.
SUMNER COUNTY	
Tighe et al's No. 1 Thieson, C NW SE SE, Sec. 22-34-2	S.D. 2,550 ft.
Trees Oil Co. and Shell's No. 1 Springate, NE SE SW, Sec. 6-34-2	S.D. 2,300 ft.
Spencer et al's No. 1 Penwell, NW SE NE, Sec. 16-3-3	Drlg. 4,130 ft.
WASHINGTON COUNTY	
Sincox et al's No. 1 Penwell, NW SE NE, Sec. 16-3-3	S.D. 1,720 ft.

WHERE RED SIGNALS SAFETY



DR. JULIUS KLEIN, Assistant Secretary of Commerce, voiced an important fact when he said of industrial equipment:

"The paralysis of advancing senility is all the more dangerous because its stealthy approach is so painless, so easy."

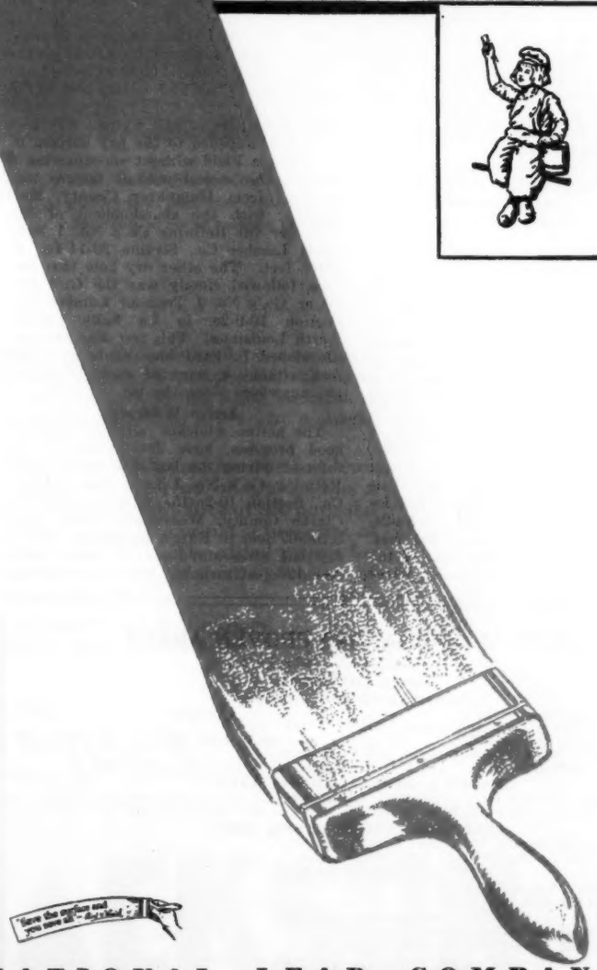
Take, for example, "senility" of metal structures due to corrosion. It comes on slowly... silently... but nevertheless surely.

To safeguard iron and steel against the stealthy approach of "senility" caused by corrosion, engineers and maintenance men paint their structures with pure red-lead. They have learned that "red signals safety" when the red is red-lead.

Dutch Boy Red-Lead seals out corrosion... seals out rust... seals out the moisture and gases that attack exposed metal. A fine, highly oxidized pigment, Dutch Boy Red-Lead is supplied in two forms —paste and liquid. The paste comes in natural orange-red, is easily mixed to brushing consistency and can be tinted to dark colors. Dutch Boy Liquid Red-Lead (ready for the brush) is available in orange-red, two shades each of brown and green, and also in black.

For full information about protecting metal surfaces with red-lead, write for our booklet— "Structural Metal Painting." Our nearest branch will gladly furnish a copy upon request.

LITHARGE of correct physical character and extreme chemical purity is a necessity in oil-refining. Such litharge is made by the makers of Dutch Boy Red-Lead and Dutch Boy White-Lead. You can always rely on its unvarying uniformity. Our nearest warehouse can give you quick shipment.



NATIONAL LEAD COMPANY

New York, 111 Broadway—Buffalo, 116 Oak Street—Chicago, 900 W. 18th Street —Cincinnati, 659 Freeman Avenue—Cleveland, 820 West Superior Avenue—St. Louis, 722 Chestnut Street—San Francisco, 2240 24th Street—Boston, National-Boston Lead Co., 800 Albany Street—Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.—Philadelphia, John T. Lewis & Bros. Co., Widener Bldg.

DUTCH BOY RED-LEAD

Mississippi Field Leads in Activity

Has 4 Out of 11 Completions in District With More Than Dozen Rigs Constantly Operating. Louisiana and Arkansas Operations

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Nov. 30.—Four gas wells out of 11 completions summarize the results in this division during the past week. The Jackson Field in Mississippi, which has been the most consistent proven area during the past two months, reported three gassers, and one dry hole, 1½ miles east of the nearest production. Union Parish of North Louisiana furnished the other gas well with the completion of the Inter-State Natural Gas Co.'s No. 27 fee Howard, Section 32-20-3e, with an initial flow of 2,000,000 feet from 2,232 feet. Another well in the Union Parish area of the Monroe Field, the Nemours Corp.'s No. 1 Harrell, Section 7-20-4e, came in with an estimated flow of 10,000,000 feet of gas from 2,146 feet, but a leaky 6-inch casing has forced the operators to set a string of 4½-inch at 2,140 feet.

In the Jackson Field, one of the best wells to date was J. E. Grandstaff and others' No. 1 East and others in Section 12-5n-1e, Rankin County. This well blew in wild two weeks ago and was killed after pumping heavy mud into the hole for several days. After being brought back in and cleaning itself out, it had an initial gauge of 52,000,000 feet of dry gas with 960 pounds rock pressure from a total depth of 2,382 feet. In the same section, one-half mile east, McGuire and others' No. 1 Motor had an estimated flow of 40,000,000 feet of gas from 2,372 feet. An extension to the Rankin County area one-half mile south was proven by the completion of the Square Deal Oil & Gas Co.'s No. 1 Spann in Section 13-5n-1e. The results of this well indicate it is about on the southern boundary of production as it gauged only 5,000,000 feet of gas with a heavy spray of salt water from 2,495 feet. In the same county, the United Gas Public Service Co.'s No. 1-A McLaurin, Section 8-5n-2e, was dry and abandoned at 3,296 feet. The test, which is 1½ miles east of the nearest producing well, tested salt water at 2,523 feet, and dry from 2,600-22 feet. The top of the red beds was encountered at 3,282 feet.

Dry Holes in Zwolle

The Zwolle Field of North Louisiana failed to obtain a producer, and the two dry holes reported from that area were disappointing in that each one was in recently discovered extensions of the field. In the western extension, Section 1-7-13, Stovall, trustee's No. 2 Nulton was dry and abandoned at 2,474 feet. The well is an offset to production on the south and east and is the first failure for this new producing area, seven consecutive producers having been completed to date. In the far southeastern extension of the field in Section 1-7-11, Eddie Selfs' No. 2 Jacobs was dry and abandoned at 2,549 feet. Both of these new producing areas have attracted most of the drilling activities during the past few months.

Several wildcats of note had barren results during the week and were abandoned. In Union County, Arkansas, Joe Modisette and others abandoned their No. 1 Webb, Section 6-18-13, in red beds at 3,625 feet. This test, which is 3 miles west of the northern extension of the Urbana Field, tested 1,000,000 feet of gas from 2,503-32 feet and a later test in the Graves sand from 2,636-45 feet, developed about 1,800 feet of salt water. The hole was then deepened to the pay horizon of the Urbana Field without encountering a show. The second wildcat failure was reported from Humphrey County, Mississippi, with the abandonment of the Danciger Oil Refining Co.'s No. 1 Bellgrade Lumber Co., Section 29-14-4w, at 3,014 feet. The other dry hole that has been followed closely was the Gulf Refining Co.'s No. 1 Tremont Lumber Co., Section 10-9-2e, in La Salle Parish, North Louisiana. This test was dry and abandoned in hard blue shale at 5,043 feet without a reported show of oil or gas anywhere along the log.

Active Wildcats

The active wildcats, although making good progress, have developed little of interest during the last few days. Gulf Refining Co.'s No. 1 Long Bell Lumber Co., Section 10-2n-15e, Quitman district, Clarke County, Mississippi, cored sand 3,700-07 feet in Eutaw formation. Bailed dry but after standing two hours fluid rose 125 feet in hole. Fluid was 40 feet of 17.5 gravity oil, 50 feet salt water and 35 feet sand. Hole will be deepened. The interesting deep test of the Lion Oil Refining Co., No. 9-A Hayes, Section 4-16-15, in the Smackover Field of Union County, Arkansas, is still in rock salt at 7,017 feet. This salt formation has been penetrated about 1,100 feet, the top of which was cored at 5,974 feet after coring hard brown and grayish lime at 5,930 feet.

Near the Bethany gas field in Panola County, East Texas, the United Production Co. will probably drill to 6,000 feet on its No. 11 Werner, D. B. Lewis Survey. The test is about 2 miles east of the nearest Trinity gas wells where the pay is found around the 4,700-foot level, and tested dry at this horizon from 4,630-94 feet. A good show of gas, which tried to blow out from lime with sandy shale above, was passed up at 3,665 feet, and was probably coming from the Glenrose, an upper Trinity formation. Southeast of this field in Shelby County, E. L. Chapman has capped his No. 1 Pickering Lumber Co., C. E. Henry Survey, which was completed as a good gasser from 3,-864 feet. It is reported that another well will be drilled in the immediate vicinity at an early date, using the gas from the completed well for fuel. About 3 miles north of the Chapman well, on the east side of Sabine River in DeSoto Parish, Louisiana, A. R. Smith has made location to drill his No. 1 Horn in Section 15-12-16. This test will be watched with interest as a possible extension of that gas area. It is understood that the Smith interests have acquired a block of 3,500 acres surrounding the wildcat.

Steady Operations

All of the proven fields that are active, although not showing a great increase in the number of rigs running, are maintaining a steady pace of operations. In the Sugar Creek Trinity gas field of Claiborne Parish, the United Gas Public Service Co. has spudded in its No. 1 Dobbins, Section 12-19-6. This is the seventh Trinity test for this area, the preceding wells all being good gassers with a high gasoline content. The entire proven area of this field, together with several thousand acres not yet drilled, is owned jointly by the Sugar Creek Syndicate, Inc., formerly known as the Triangle Drilling Co., the Standard Oil Co. of Louisiana and the United Gas Public Service Co. Most of the drilling to date in the field has been done by the Triangle Drilling Co., the discoverers and pioneer operators in that section.

The Zwolle chalk rock field of Sabine Parish continues to be the most active oil field in the division with more than 20 active drilling operations and several wells now waiting on standard rig to pump.

The Jackson Field in Hinds and Rankin Counties, Mississippi, although small in area, has recently taken the lead in completions and activities. This field has reported 10 gas wells completed during October and November with an average of close to 30,000,000 feet of dry gas per well. More than 12 rigs are constantly operating in that area.

Daily Average Runs

There was a net decrease of 665 bbls. in the daily average runs from the fields of North Louisiana and Arkansas during the week. Daily average runs from the several pools were:

NORTH LOUISIANA

	Bbls.
Caddo, light	6,080
Caddo, heavy	1,755
Cotton Valley	360
DeSoto and Red River	2,125
Elm Grove	355
Haynesville	4,360
Holly	340
Homer	2,825
Pleasant Hill	360
Sarepta-Carterville	900
Urania	3,670
Zwolle	6,000
Total North Louisiana	29,130
Total previous week	29,570
Decrease	440

ARKANSAS

Champagnolle	2,060
El Dorado	3,265
Lisbon	570
Nevada	1,120
Smackover, light	3,110
Smackover, heavy	25,900
Stephens	680
Urbana	820
Total Arkansas	37,525
Total previous week	37,750
Decrease	225
Total both states	66,655
Total previous week	67,320
Decrease	665

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

CADDO PARISH—PINE ISLAND

Company, farm and location— Remarks:
Shreveport Oil Corp.'s No. 2-B Muslow, 1,000 ft. S, 300 ft. E, NW cor., Sec. 32-21-15 ..... S.D. 2,135 ft.
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15 ..... Tested S.W.; S.O. 2,275 ft.

CADDO PARISH—RHODESSA AREA

United Gas Public Service Co.'s No. 1 H. J. Bussa, Sec. 32-23-16, 990 ft. W and 660 ft. S of NE cor. ..... Set 7-in. 5,367 ft.

CLAIBORNE—SUGAR CREEK AREA

United Gas Public Service Co.'s No. 1 Dobbins, Sec. 12-19-6e, 1,184 ft. W, 700 ft. S, NE cor. Sec. ..... Drlg. 30 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 300 ft. S, NE cor., Sec. 2-20-4 ..... Location.

OUACHITA PARISH

Carbon Consolidated's No. 7 Guthrie, Sec. 50-20n-4e, 5,263 ft. N and 7,475 ft. W of cors. of Secs. 25, 26 and 49, in Sec. 50 ..... Location.

RICHLAND PARISH

Pelican Nat. Gas Co.'s No. 1 Alexander, Sec. 4-16-6, 660 ft. N and W, SE cor. Sec. ..... Drlg. 2,360 ft.
Southern Carbon Co.'s No. 6 Rosengraut & Ducomb, 2,-640 ft. E, 1,980 ft. N, SW cor., Sec. 19-17-6 ..... Location.
Southern Carbon Co.'s No. 8 Rosengraut & Ducomb, 2,546 ft. E, 660 ft. N, SW cor., Sec. 18-17-6e ..... Drlg. 1,795 ft.
United Gas Public Service Co.'s No. 14 Rhymes England, Sec. 32-17-6e, 392 ft. N, 662 ft. W, SE cor. section ..... Set 9-in. 860 ft.

SABINE PARISH—ZOWLLE

Coates Petroleum Co.'s No. 1 Hale, Sec. 1-7-13 ..... Set 10-in. 84 ft., drlg. 1,350 ft.
Crescent Drilling Co.'s No. 2 McCormick, Sec. 2-7-11.... Derrick.
Lyons & Neely's No. 1 McClanahan, Sec. 14-7-11, SE cor. SE NW .... Derrick.

(Continued on Page 66)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location— Remarks:
Arcadia Drlg. Co.'s No. 1 Mason, Sec. 28-18-6, 1,200 ft. W, 190 ft. N, SE cor. NE NW ..... Coring 2,198 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14 ..... S.D. 2,890 ft.
Dr. W. N. Hankin's No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11 ..... Coring 1,662 ft. (corrected).
D. L. Perkins' No. 1 Ardis & Co., 1,127 ft. N, 198 ft. E, SW cor., Sec. 13-15-11 ..... S.D. 1,004 ft.

CADDO PARISH

D. C. R. Oil Co.'s No. 1 Oden account 5, Sec. 18-19-14, 430 ft. W, 280 ft. S, NE cor. SE ..... Began Nov. 21; set 10-in. 120 ft.

CALDWELL COUNTY

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4 ..... S.D. 110 ft.
Hudson et al's No. 1 Burton, Sec. 35-12-2e ..... S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMiller, 70 ft. N, 100 ft. W, C, Sec. 26-9-6 ..... T.A. 3,097 ft.

DE SOTO PARISH

E. T. Oakes' No. 1 R. H. Bryant et al, 200 ft. N and W, SE cor. NE NW, Sec. 30-13-15 ..... S.D. 3,038 ft.
Rellitt Oil Co.'s No. 1 Ganno hrs., 300 ft. S and E, NW cor. NW NE, Sec. 12-11-16 ..... S.D. 1,965 ft.
A. R. Smith's No. 1 Horn, Sec. 15-12-16, NE cor. Sec.... Derrick.
Walters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 3-11-13 .... S.D. 1,266 ft.

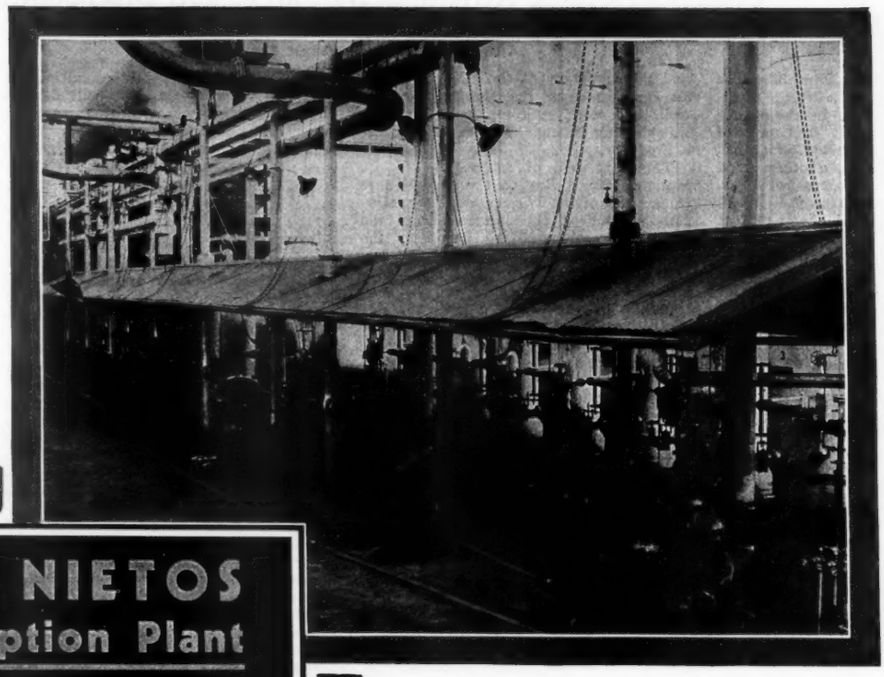
LA SALLE PARISH

Gulf Ref. Co.'s No. 1 Tremont Lbr. Co., 668 ft. N, 632 ft. E, SW cor., Sec. 10-9n-2e ..... Drlg 5,031 ft. gray lime.

MOREHOUSE PARISH

United Gas Public Service Co.'s No. 2 Sandidge, Sec. 11-20n-4e, 656 ft. S, 1,332 ft. W NE cor. NW ..... Rigging up.

(Continued on Page 66)



LOS NIETOS
Absorption Plant
Chooses
Byron Jackson Pumps

Los Nietos Producing and Refining Company's absorption plant in Kettleman Hills shows Byron Jackson process pumps in service.

SIX complete Byron Jackson pumping units, three for oil process work and three for water service, are being used by the Los Nietos gasoline absorption plant in Kettleman Hills. The three process pumping units consist of three pumps each, mounted on a common bedplate and driven by a single 165 HP. 3450 R.P.M. steam turbine.

One of the oil pumping units is used for cold lean oil, another for hot lean oil and the third for reflux. The cold high pressure lean oil pump has a capacity of 260,000 gallons per day against a working pressure of 500 pounds. The hot lean oil pump has the same capacity, works against a pressure of 60 pounds and handles oil at a temperature of 250° F. The third pump for reflux service has a capacity of 115,000 gallons per day, against a pressure of 60 pounds, the liquid having a temperature of 150° F.

Byron Jackson Bulletin 314 on Centrifugal Oil Refinery Pumps, just published, will be sent on request.

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Good Showing in Nueces County Test

Several Interesting Tests in the Pettus District. Kerr-Real Counties Holding Attention. Balcones Fault Disappointments

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Nov. 30.—The Stanolind Oil & Gas Co.'s No. 1 Stratton, in the southwest corner of Nueces County, has had another good showing of gas, this time in 15 feet of sand at 4,773-88 feet and under 3 feet of rock. The test has been standing for some weeks at 4,765 feet waiting for orders. It had a showing of gas at 4,752 feet that looked like a well but the pressure and volume would not hold up. Recently it started to deepen and ran into more gas.

This test is about 7 miles almost due south of the Agua Dulce Field where gas production is had at 2,000 feet and where Houston Oil Co. has two oil wells down around 4,900 feet. This Agua Dulce production is the nearest to No. 1 Stratton.

In the Saxet Field very little new developed. In San Patricio County Atlantic Oil Producing Co.'s No. 1 Welder is down below 4,300 feet and drilling. Production of gas in the Aransas Oil Corp. discovery well on the Welder ranch was at around 3,634 feet. The Atlantic test is 2 miles southwest of the discovery gasser.

The final testing of the Humble Oil & Refining Co.'s No. 1 O'Connor in northern Refugio County will have an important bearing on all this territory south through San Patricio and Nueces and other counties because of the similarity of conditions.

Pettus District

In the Pettus area the failure of H. H. Weinert's No. 1 Ray to make a well as reported last week was quite a dampener and the Houston Oil Co.'s No. 2 Portis, an east offset to the Damac discovery well, had not yet completed though it was drilling in and is expected to make a producer.

The next test of interest is W. L. Morgan's No. 1 Ray on the next 10-acre tract south of the Weinert dry hole. Morgan has moved the location from the northwest corner of his lease to the northeast corner and is skidding the derrick. This test when drilled may solve some important questions and help to explain why the Weinert well was dry in the regular sand when a quarter of a mile east and west were producers. Weinert is continuing to drill deeper.

Of especial interest in that area is the United Production Co.'s No. 39 Ray at the east end of the older field, now down below 7,375 feet and continuing to drill. The orders are to keep drilling till told to stop. There is no depth limit set and it may be carried as deep as it is possible to get tools to carry it. The purpose is to test out the formations. This test is already the deepest test that has been drilled in the Pettus sand zone. The Humble's No. 50 Kohler in the Kohler gas field in Duval County was abandoned some weeks ago at 7,725 feet.

When J. M. Davis starts his test at Mineral, 6 miles southwest of nearest production in the Pettus Field it will also be of interest as it is in the direction of the trend of fields in that part of the country and is sure to add to the knowledge of geology whether it adds to production or not.

North of the Pettus Field in southern Karnes County and at right angles to the trend of structures in that country it is understood that V. F. Neuhaus will drill another test. He abandoned his No. 1 Russell at 2,978 feet where it had salt water and a slight showing of gas but enough to warrant making a second location.

The understanding is that ultimately the Carsil Oil & Gas Co. will develop the producing spot it proved up some weeks ago in northwestern Jim Wells County. The discovery well is a gasser.

Kerr-Real District

Evans & Gant will drill one of their tests in the Kerr-Real district to the Ellenberger and this is one of the most important announcements that has been made concerning that territory. Four tests in western Kerr and eastern Real have been carried to contract depth of 4,000 feet and they have proven that the Pennsylvanian has many sands and have some showings of oil and gas and No. 1 Love made a small oil well at 2,552 feet and also at 3,391 feet. But nothing in all that country has ever gone through the Pennsylvanian. Some tests a little farther west have had as much as 5,000 and more feet of Pennsylvanian and then did not get through it. Hence the decision to carry one of the tests to the Ellenberger to find out how much Pennsylvanian there is, is important. Of course it has a chance of picking up some producing sands above the Ellenberger and if it gets worthwhile production may never let daylight down to the Ellenberger and some other test will be selected to do that.

Evans & Gant are also to drill an offset well to their No. 1 Love which had the two showings at 2,552 and 3,391 feet, to further test these sands. No. 1 was carried to the 4,000-foot contract depth.

Balcones Fault Disappoints

The Balcones fault registered a couple of disappointments. Lloyd North's No. 1 Keith McGee in Caldwell County is a dry hole at 2,550 feet and Pray & Campbell's No. 1 Kreuger in Guadalupe County, 4 miles west of the Darst Creek Field, produced sulphur water in the Edwards at 2,538 feet. This last test is a half mile northeast and just across the Guadalupe River from W. J. Walton's No. 1 Zoborolski, which at 2,210 feet and in the chalk has been flowing about 8 bbls. of oil a day. This chalk production rather held out the idea that the Pray & Campbell test on the same structure would find things favorable for production in the Edwards lime.

Laredo District

In the Laredo district, while completions were light, some little interest was created when the Magnolia in abandoning an old oil well at the south end of the Henne, Winch & Fariss Pool at Thompsonville in Jim Hogg County, near the Zapata County line, shot the casing at 1,000 feet and the well blew in a gasser that gauged 9,000,000 feet with 400 pounds pressure. It is evidently a new sand, the presence of which was not known. Oil production in that field is at an average of 2,150 feet and tests put down with the rotary after the discovery well was brought in were shot down mudding off everything to the producing sand and without trying to investigate for shallower sands. The Magnolia well is under control and awaiting orders.

Considerable importance is attached to Usher Carson's No. 5-D Webster in the Carolina-Texas Field in Webb County. Carson discovered the 3,000-foot pay in that field for oil but the first wells were not large and there are not many. No. 5-D has been producing for some time. It was deepened to 3,050 feet and is now flowing 125 bbls. of oil and the oil is 47 gravity.

Miscellaneous

Jacob, Buzzini & Pickett's No. 1 Jacob, in northeastern McMullen County, at 756 feet is in a gas sand that looked so good they have set casing. It is a wildcat but near some shallow gas wells that produced in the Grubstake Field in the early days, and was being drilled for a deep test.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Glen Mathis' No. 2 Mrs. C. Martin, 100 ft. SE of No. 1.	T.D. 2,980 ft; S.D.

BLANCO COUNTY

Hardy-Sitton's No. 1 McMillan	T.D. 602 ft; S.D.
Theo. Hicks' No. 1 Specht, 1,500 ft. from S line, 500 ft. from W line of farm, in Thomas M. Fowler Sur. No. 27 in extreme south point of county	T.D. 1,650 ft.; S.D.
Liles Adams et al's No. 1 Luders, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155	T.D. 1,100 ft; standing.
McCleary et al's No. 1 Scheuling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City	T.D. 674 ft; S.D.
C. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,360 ft. to N line, Sur. No. 94	T.D. 712 ft; S.D.

BASTROP COUNTY

E. R. Mart's No. 1 Bahme, 1,650 ft. to E line, 1,300 ft. to S line of farm, James Standifer Sur.	Rigging up.
Sun Oil Co.-Humble Oil & Ref. Co.'s No. 1 Powers, 400 ft. to N and E lines of Blk. 197, Bastrop town tracts.	Derrick.
Texas Dev. Co.'s No. 1 C. H. Ray, 800 ft. from W line and 400 ft. from S line of farm, in Thos. Christian Sur.	T.D. 2,600 ft.; drlg.

BELL COUNTY

Birdwell et al's No. 1 Nichols, 150 ft. to W and N lines of farm, N. Roberts Sur.	T. D. 330 ft.; drlg.
Bridwell et al's No. 1 G. A. White, 550 ft. to E line, 150 ft. to S line of farm, Nancy Roberts Sur., 4 miles SE from Belton	T.D. 450 ft.; drlg.
Bridwell et al's No. 1 Witter, 2,500 ft. to W line, 1,800 ft. to S line in Margarite Frazier Sur.	T.D. 1,000 ft.; flow. fresh water.
Field & Lange's No. 1 Stubblefield, 450 ft. from S line and 150 ft. from E line of farm in Antonio Manchaca Sur.	T.D. 500 ft.; abnd.
J. W. Riley's No. 1 W. S. Chaffin, in M. Griffin Sur.	T.D. 365 ft.; S.D.
Jas. Scroggins' No. 3 Warrick, Ingram Sur.	T.D. 1,432 ft.; S.D.

BEE COUNTY

Alexander et al's No. 1 McFall, 3 miles S Skidmore	T.D. 1,870 ft; standing.
Humble O. & R. Co.'s No. 1 Laura Thompson, 6,360 ft. from N line, 15,100 ft. from W line of tr. in Garrett Roache Sur., S part of county	T.D. 3,727 ft.; drlg.

BEXAR COUNTY

J. E. Anderson's No. 1 Suburban Irrigated Farms, 500 ft. to N line, 600 ft. to E line of C. Logan Sur.	T.D. 1,430 ft.; drlg.
Callahan Final Oil Co.'s No. 1 B. H. Buck, 900 ft. to E line, 3,200 ft. to S line of farm, in J. M. McGamley Sur.	T.D. 650 ft.; drlg.
Eckert et al's No. 1 Edwards, 150 ft. to N and W lines of farm in Martinez Sur.	Rigging up.

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SOUTHWEST TEXAS PROVEN AREAS

DOBROWOLSKI POOL—BEXAR COUNTY

Company, farm and location—	Remarks:
Williams et al's No. 2 Strunk, Juan Montez Sur.	Rigging up.
Witherspoon Oil Co.'s No. 3 Ramzinski, 330 ft. to W line of tract, 660 ft. S of No. 1 Ramzinski.	T.D. 1,580 ft.; 10 bbls.

NORMANNA POOL—BEE COUNTY

C. F. Nichols' No. 1 Hicks	T.D. 1,992 ft.; rigging to deepen

PETTUS POOL—BEE COUNTY

C. R. M. Drlg. Co.'s No. 1 Ray	Making location.
United Prod. Co.'s No. 39 Ray, 1,130 ft. to SE line, 2,396 ft. to SW line of T. Hanson Sur.	T.D. 7,265 ft.; drlg.
H. H. Weinert's No. 1 Ray, 150 ft. N and E lines of lease in Jno. W. Williamson Sur.	T.D. 4,300 ft.; drlg.
Houston Oil Co.'s No. 2 Portis, 330 ft. from N and W lines of A. Smalley Sur.	T.D. 3,905 ft.; waiting on cmt.
W. L. Morgan et al's No. 1 Ray, 150 ft. to N and E lines of 10-ac. lease, next south of Weinerts, John W. Williamson Sur.	Derrick.
The Texas Company's No. 1 E. Gremmel	Derrick.

SIMMS POOL—BEE COUNTY

Al Buchanan's No. 1 Mary Dorenfield in John Lyford Sur., 160 ft. to W line, 2,305 ft. to N line of tract.	Rigging up.
Hughes et al's No. 1 Martin, 1,000 ft. S of Simms Oil Co.'s No. 1 Holzmark in John Lyford Sur.	T.D. 2,600 ft.; drlg.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, 150 ft. to N line, 750 ft. to W line of tr., A. Floyd Sur.	T.D. 2,572 ft.; standing.
John Storey's No. 1 Dickerson, 150 ft. to N of center of S line of tract, John R. Rains Sur.	Location.

S.R.C.-VACUUM POOL—DUVAL COUNTY

S.R.C. and Vacuum's No. 6 Duval Land Co., 150 ft. W. 450 ft. N of No. 5, Sur. 293	Drilling.

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Duval Oil Corp.'s No. 6 Bishop Cattle Co., 1,980 ft. to W line, 990 ft. to S line of N half of Sur. No. 135.	T.D. 2,335 ft.; set csg.
Magnolia Pet. Co.'s No. 6 Wilson, 330 ft. to E line, 2,346 ft. to N line of Sur. No. 136	T.D. 2,300 ft.; set csg.
Magnolia Pet. Co.'s No. 5 Wilson, 330 ft. from N line W line, 330 ft. from S line of Sur. 135	T.D. 2,316 ft.; set csg.
Thomas & Tarver's No. 4 Bishop Cattle Co., 1,175 ft. E of W line, 300 ft. N of S line, Sec. 135	T.D. 2,300 ft.; set csg.

COLE POOL—DUVAL COUNTY

Cole Petroleum Co.'s No. 71 Benavides, 365 ft. from SE line, 442 ft. from NE line of Blk. 8, Sec. 19, Cole sub. Mariana Arispe grant	T.D. 1,757 ft.; comp. 25 bbls.

CAMP POOL—GUADALUPE COUNTY

Humble Oil & Refining Co.'s No. 2-C Sue Denman, 900 ft. N, 450 ft. E of SW cor. of lease and 450 ft. N, 300 ft. E, 1-C, William Arrington Sur.	T.D. 2,538 ft.; standing 1,800 ft. in oil.

(Continued on Page 65)

New Mexico Well Has Big Gas Pressure

Continental Kills Output to Conserve Reservoir Energy. Good Completion in Wyoming. Cold Weather Hits Colorado

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Nov. 30.—The allowable outlet of the Hobbs Pool in New Mexico was increased to 37,237 bbls. daily for the last half of November, a gain of 112 bbls. daily. The Continental Oil Co.'s No. 4-A State, in the Hobbs Pool, blew in for 138,500,000 feet of gas per day and 266 bbls. of oil per hour at 4,050 feet and is being killed to drill deeper to relieve the pressure in producing the well. The Continental's No. 17, on the Rattlesnake Dome, which was deepened 100 feet after being on production for two years, has 4,200 feet of water and 700 feet of oil in the hole.

Cold weather and frozen water lines hindred operations in Colorado. The Prairie Oil & Gas Co.'s No. 1 Mortier, 6 miles southeast of the Greasewood Dome, is running pipe to test the Dakota which showed saturation. The Greeley Oil Co.'s No. 1 Gadbois, which will extend the Greasewood Pool two-thirds of a mile, is bailing down to test after coring the Muddy sand. The Colorado Associated Oil Co.'s No. 1 Pumphrey, north of Fort Morgan, will go on down to the Lakota after finding water in the Dakota.

Wyoming had one completion in the Federal Oil Co.'s No. 1 in the Osage Field, which is flowing 600 bbls. and which marks a slight western extension of the pool. The Ohio Oil Co.'s deep test on the Neiber Dome, looks unfavorable at a total depth of 8,550 feet.

Montana had one completion in the Border Field in the Askalta Oil Co., Ltd.'s No. 2 Farbo, which is making 200 bbls. per day.

NEW MEXICO

Lea County

The schedule of potentials and allowables for the Hobbs Pool as of November 16, issued by Umpire C. G. Staley, places the potential at 1,131,603 bbls. daily, an increase of 3,013 bbls. The increase is due to the completion of the Gypsy Oil Co.'s No. 1 East Grimes, Section 33-18-38, which was given a potential of 3,013 bbls. The allowable outlet for the last half of November was placed at 37,237 bbls. as against 37,125 bbls. daily for the first half of the month.

The Continental Oil Co.'s No. 4-A State-33, NE NW SE, Section 33-18-38, made a sensational display this week when it blew in at 4,040 feet and at a total depth of 4,050 feet gauged 138,500,000 feet of gas in 24 hours and 266 bbls. of oil per hour. This is credited with being the largest gas well in New Mexico, but it is being killed to drill deeper so the gas pressure may be saved as much as possible in producing the oil. It is a diagonal offset to the Gypsy Oil Co.'s No. 1 East Grimes and a much larger well. It struck the pay in a very porous lime formation more than 100 feet higher than it was expected. It is on the southeastern side of the pool where the only drilling in the field is in progress. It is planned to go around 100 feet deeper so that tubing may be set below the heavy gas pressure. The gas blew large rocks up through the derrick to the top of the crown block. Water is being pumped in at a total depth of 4,050 feet.

The Continental's No. 5-A State-33, C NW SE, Section 33-18-38, is drilling at 3,365 feet in hard anhydrite. The Midwest Refining Co.'s No. 26 State, NW SE SE, Section 33-18-38, is drilling at 3,797 feet in lime and is expected to be an early completion, and its No. 8 Byers, SE NW NW, Section 3-19-38, is drilling at 2,741 feet in shale and anhydrite.

Eddy County

R. D. Compton's No. 1 Compton, NE NW NE, Section 8-18-27, Artesia area, is drilling at 300 feet. Flynn, Welch & Yates' No. 61 State, SE NE NW, Section 32-18-28, is shut down at 650 feet and their No. 62 State, NW cor. SE, Section 10-19-28, is drilling at 400 feet. The Western Drilling Co.'s No. 1 Green, NE cor. NW, Section 29-17-29, is bottomed at 2,130 feet and running pipe.

San Miguel County

The Hershfield Oil Development Co.'s No. 1 Cabra Springs Ranch, C NE, Section 21-12-22, which has been shut down at 1,530 feet following the death recently of E. G. Hurd, who financed the operation, is resuming. The 12½-inch has been cemented at 1,370 feet.

Bernalillo County

The Norins Realty Co., Inc.'s No. 1 Pajarito grant, NW cor. NE, Section 22-9n-1e, which has been shut down for casing at 900 feet, now has the 12½-inch on the ground and is preparing to resume.

San Juan County

The Continental Oil Co.'s No. 17 Santa Fe, C NE, Section 2-29-19, Rattlesnake Dome, which was drilled deeper from 6,790 feet when the gas pressure went off and production could not be restored, is standing at 6,890 feet with 4,200 feet of water and 700 feet of oil in the hole. This is the discovery well which has produced more than 360,000 bbls. of oil since it was completed two years ago. Same company's No. 24, SW NW SW, Section 1-29-19, is standardizing at 6,066 feet.

Rio Arriba County

The Governador Dome Oil Co.'s No. 1, SE, Section 15-29-7w, is drilling at 1,950 feet and carrying the 5 5/16-inch casing 60 feet off bottom.

COLORADO

Morgan-Weld Counties

Prospects for production in the Dakota sand in the Prairie Oil & Gas Co.'s No. 1 Mortier, C NE NW, Section 2-5n-60, Jackson Lake area, 6 miles southeast of the Greasewood Pool, were sufficiently encouraging for the company to run the 7-inch pipe to make a test. The Dakota was topped at 6,530 feet and the hole was drilled to 6,552 feet when operations were suspended to run casing which will be cemented at 6,532 feet, 2 feet below the top. Running pipe was delayed by the cold weather and frozen water lines. The first 8 feet of the sand was very hard and the small parts of the core recovered showed some saturation. The hole was then reamed to the bottom of the core hole when the sand softened. Coring was then resumed, but when the stem was pulled, only a few small bits of sand were recovered from 9 feet of sand cored. These small samples showed saturation. It was then decided to ream the hole and it was carried 22 feet into the sand. It probably will be a week before a test can be made and in the meantime the outcome will remain in doubt.

Officials of the company express confidence in the Dakota being productive. The Muddy sand at 6,465-90 feet, which showed some saturation and which looked as favorable as the cores from the Greasewood wells, will be cased off to test the Dakota. There was no water encountered in the Dakota.

The Colorado Associated Oil Co.'s No. 1 Pumphrey, C SE SE, Section 14-4n-58, North Fort Morgan, which developed about 50,000 feet of gas per day with 55 pounds pressure, along with 3 bbls. of water per hour in the Dakota at 5,836-45 feet, will be drilled on down to the Lakota. It was cored 5 feet deeper into the Dakota and it is reported that a test with a Halliburton tester showed the water to be coming from the sand. It is planned to core through the entire Dakota sand, which is estimated to be around 150 feet thick, and then drill on down to the Lakota, the top of which is expected at around 6,070 feet. The 8⅝-inch is cemented at 5,815 feet.

William Myers' No. 1 Lee & Lusby, C NE SW, Section 6-2n-56, on which only preliminary work has been done, will not be drilled until after the Colorado Associated Oil Co.'s No. 1 Pumphrey is completed. Spudding date is reported postponed until December 20.

The Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, South Fort Morgan, is waiting after cementing back from 5,905 feet to 5,596 feet.

In the Greasewood area in Weld County, the Reiter-Foster Oil Co.'s No. 1 Johnson-Juhl, C SE SE, Section 14-6n-61, the first well in the Greasewood Pool to be drilled down to the Dakota, is bottomed at 6,750 feet and replacing boiler which was damaged in an explosion. It is believed to be only a few feet off the top of the next objective. This well had water in the Muddy sand. It is half a mile to the west of the Continental Oil Co.'s No. 1 Briggs, the nearest producer.

The Continental Oil Co.'s No. 1 Gadbois, C SE SW, Section 24-6n-61, which has been delayed for several weeks at 6,593 feet by a fishing job, made considerable progress this week. The fishing string was recovered and preparations are being made to run the 4-inch drill stem to fish for the last string of tools. This well had cemented the 7-inch at 6,578 feet and was about ready to drill in when the tools were lost. It is half a mile to the south of the discovery well and appears to be running only about 5 feet lower.

The Reiter-Foster Oil Co.'s No. 1 Wilson, C NE SE, Section 24-6n-61, cemented the 15½-inch at 320 feet.

The Greeley Oil Co.'s No. 1 Gadbois, C NW NW, Section 25-6n-61, two-thirds of a mile to the southwest of the discovery well, the nearest producer, is bailing down to test. The Muddy sand was cored at 6,673-91 feet and showed some saturation. The 7-inch was cemented at 6,671 feet and plug drilled out and hole reamed to bottom. It is not yet known whether it will make a producer. When water had been bailed down 900 feet it was showing some oil and gas.

The Prairie Oil & Gas Co.'s No. 1 O'Toole, C SE NE, Section 33-7n-62, 10 miles to the northwest of Greasewood, is bottomed at 4,300 feet and shut down on account of frozen lines. It was running the 9⅝-inch at 4,438 feet.

Arapahoe County

The MacDeb Drilling Co.'s No. 1 Fitzsimmons, near Aurora, NE, Section 7-4s-66, has sidetracked tools at the bottom of the hole and is going back to cement the 6¼-inch at 3,650 feet, where it has been hanging for some time. The bot-

CONFERENCE FAILS IN AGREEMENT ON TURNER VALLEY UNITIZATION

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Nov. 28.—Official figures of Alberta production for the 10 months ending October 31, 1931, issued by R. G. Reid, provincial minister of mines, show a total from all Alberta fields of 1,269,722 bbls., a slight increase over the same period last year.

Pipe line runs for the Turner Valley Field to October 31, aggregated 1,057,230 bbls., against 1,019,683 bbls. in the corresponding period last year. Up to June, 1931, the production showed an increase over the previous year; but since then, owing to government restrictions and the limitation imposed by Imperial Oil, Ltd., on deliveries, the output has shown a general decline. It is anticipated that total production for 1931 will, consequently, be somewhat less than for 1930.

For October, the Alberta production showed a decrease. The comparative figures for the various Alberta pools follow:

Pool—	October, 1931	October, 1930
Turner Valley naphtha ...	80,600	150,040
Turner Valley light crude.	2,643	2,485
Red Coulee light crude ...	4,413	6,615
Wainwright heavy crude ..	407	485
Ribstone heavy crude	989	235
Total	89,052	159,860

The government figures for October show total deliveries from Turner Valley of 83,243 bbls., while pipe line runs amounted to 69,522 bbls. The difference of 13,721 bbls. largely represents direct sales at the wells.

Unit Operation

Following a conference between J. E. Brownlee, premier of Alberta, and A. M. McQueen, vice president of Imperial Oil, Ltd., announcement was made by the former that Imperial Oil, Ltd., had definitely refused the proposed agreement for unit operation of the Turner Valley Field, as finally revised by the subcommittee on conservation, headed by Frank P. Fisher.

According to the official announcement, the government was notified earlier in November that the agreement could not be accepted by Imperial Oil, Ltd. Premier Brownlee wired Mr. McQueen urging reconsideration, and as a result the conference was held at Edmonton. The conference was also attended by R. G. Reid, minister of mines; William Calder and Frank P. Fisher, representing the government; and O. B. Hopkins, chief geologist; R. O. Armstrong and J. H. McLeod, representing Imperial Oil, Ltd.

According to the official statement, Imperial Oil, Ltd., feels that the agreement is not fair or just either to the company itself or to subsidiary and associate companies.

Following the conference, Premier Brownlee stated that the government was consulting with its technical advisers as to further action, and intimation was given that owing to the inability of the interests concerned to get together in a voluntary agreement, the government might enforce its own conservation measures. The possibility of arbitrarily closing all wells that require more than

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tom of the redrilled hole is at 5,850 feet and is estimated to be 7 feet off a sand that was barely touched several months ago and which yielded a show of oil. It is making a little gas at its present depth. The hole now appears to be in better condition than for some time and the drillers are confident that it can be put down to the sand in which the show was found within the next week or two.

Adams County

The Hills Dome Oil Lease Development Co.'s No. 1 Hills, SE cor., Section 27-3s-64, near Watkins, is drilling below 3,760 feet in shale and shells.

Jefferson County

The Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, near Denver, is bottomed at 4,106 feet and is standing with the 6⅝-inch cemented at 3,950 feet in what the drillers claim is the bottom of the Niobrara lime. Shows of both oil and gas are reported. If this interpretation of the formation is correct, the hole is close to the Nio-Benton, or Coddell sandstone.

Fremont County

The Canon Heights Oil Co.'s No. 2 Harding, NE SW, Section 21-18-70, Orchard Park district, north of Canon City, had a flow of water testing 85° F. in sand at 2,700 feet. It had water in the Dakota at 2,530 feet. The objective is a sand in the Pennsylvanian formation expected at around 3,000 feet.

Larimer County

The Raddatz Corp.'s No. 2 Fagan, NE SE NE, Section 17-4n-69, Berthoud Dome, is drilling at 2 050 feet in shale.

Boulder County

Julius Williams' No. 1 Degge, NE SE SE, Section 6-1n-71, Boulder Arch, is drilling at 790 feet. It has been showing traces of oil in the Pierre shale for the last 140 feet. This wildcat is about a mile to the west of the old Boulder Field in which the Hygiene sand is found at around 1,700 feet. At this location it is expected a little below 800 feet. The Hygiene outcrops a little to the north of the well with a fault intervening and the test is on the downthrow side of this fault.

Moffat County

The Ohio Oil Co.'s No. 1 Bogenschultz, C SE, Section 9-6n-91, Craig structure, has rig up.

Rio Blanco County

The California Co.'s No. 1 California-Raven, NW SE, Section 30-2n-102, Rangely Dome, is drilling at 3,152 feet in an 18-inch hole. It will go as deep as possible with this size bit before running the 13⅜-inch. It topped the Dakota at 2,940 feet and that sand was mudded off and no test made to determine whether it carried gas as it does in wells nearby. The objective is the Weber, or Tensleep sandstone in the Pennsylvanian formation. The 20-inch was cemented at 488 feet.

The Magnolia Petroleum Co.'s No. 1 Maddock, C NW SE, Section 9-2s-96, Piceance Creek, is standing with the 10¾-inch cemented at 2,031 feet.

Park County

The South Park Oil Co.'s No. 1 Milligan, NE cor. SE, Section 13-8s-76, near Jefferson, is bottomed at 2,605 feet and waiting for parts which will be moved in as soon as roads are open. The South Park Oil & Gas Co.'s No. 1 Esche, SE cor. NW, Section 5-9s-76, cemented hole at 2,495 feet to drill up spear and then will run the 6⅝-inch.

LaPlata County

J. W. Irwin & Co.'s No. 1 Doescher, SW cor. NW, Section 29-33-13w, Dry Mesa, is standardizing at 3,171 feet. There was a slight show of oil in the Dakota topped at 3,135 feet.

Archuleta County

The Standard Oil Co. of Colorado's No. 2 Brooks, NW cor. NE, Section 2-32-2e, Price Dome, is drilling at 100 feet.

WYOMING

Weston County

One of the best completions in the Osage district reported for a long time was the Federal Oil Co.'s No. 1, NE cor. SE, Section 15-46-64, which found the sand at 2,074-80 feet and is flowing 600 bbls. per day. This well is west of Beaver Creek and marks a slight extension of the proven area to the west. Floyd Clark, of Alliance, Neb., president of the company, lived only one day after the well struck the pay.

The Chadron-Osage Oil Co.'s No. 15, NW cor. SW, Section 14-46-64, ran the 8¼-inch at 1,000 feet and is waiting for cement to set.

The Le Faivre Oil Syndicate's No. 1 Martin, NW SE, Section 29-45-68, Buck Creek, is bottomed at 1,800 feet and hauling in pipe.

Julius Peters and others' No. 1 Witzell, SE cor. NW, Section 30-46-64, is drilling at 3,400 feet in what is reported to be the Muddy sand.

Washakie County

The Ohio Oil Co.'s No. 1 Strothers, SW SE NW, Section 19-45-92, Neiber Dome, one of the deep basinal structures in the Big Horn Basin, appears to be a failure at a total depth of 8,550 feet in what is believed to be the Sundance, which is dry. The sands in the Frontier, which was topped at 7,090 feet, had some shows, but these were not considered commercial. The Dakota sands were dry. Since there is a doubt as to the identity of the sand in which it is bottomed, it probably will be drilled a little deeper. The well commenced spudding last March. It was drilled without any serious mishap by the Noble Drilling Co., which has the contract. The 15½-inch was cemented at 782 feet, the 9⅝-inch at 6,144 feet and the 7-inch at 7,260 feet. It probably is the second deepest hole drilled in the Rocky Mountain area.

The Bales Oil Trust's No. 1 Brome, NE NW, Section 31-48-80, Hidden Dome, is shut down at 1,100 feet.

Fremont County

The Ward Oil & Gas Co.'s No. 1, NE cor., Section 28-34-90, Dutton Basin, which blew in as a gas well in the lower Frontier two weeks ago at 2,530 feet, only to bridge and shut off the gas, has not yet been able to make a test. Water intrusion, believed to be from above, has hindered completion and attempts are being made to lift the pipe and recement. Caving has continued and when the bottom was reached the third time there were 25 to 30 feet of green oil standing in the hole.

Uinta County

The Trans-Western Petroleum Co., Ltd.'s No. 1, C SE, Section 6-14-118, Aspen district, is reported shut down for the winter at 3,216 feet.

Carbon County

The Prairie Oil & Gas Co.'s No. 1, SE SE SW, Section 29-27-89, Bunker Hill, has drilled out cement after setting the 9⅝-inch at 6,147 feet and is preparing to test the Dakota. The sands in the Frontier showed oil and gas saturation, but no stop to test was made as the deeper horizons were the original objectives.

The Midwest Refining Co.'s No. 27 Union Pacific, NW SE SE, Section 11-20-81, Elk Mountain, is bottomed at 4,020 feet and pulling the 6⅝-inch.

The Producers & Refiners Corp.'s No. 4, SW cor. SE, Section 7-26-89, Wertz Dome, is shut down on account of storm at 3,541 feet.

Converse County

The Pioneer Oil Co.'s No. 1, C SW NE, Section 5-31-70, Irvine Basin, is preparing to resume following the election of W. E. Snell as president. The hole was drilled to 3,650 feet several years ago and had some saturation in the Sundance, but was in bad shape and no test was ever secured. It was cemented back to 3,270 feet to drill up iron in the hole.

Niobrara County

The Indian Petroleum Co.'s No. 1, NE NW NE, Section 7-35-65, Lance Creek, an old well being deepened to test the Sundance, is testing a show of gas at 4,229 feet. The 4¾-inch was cemented at 4,220 feet, close to the top of the objective.

The Interstate Oil & Refining Co.'s No. 1, Section 2-39-61, West Mule Creek, is drilling at 450 feet with the sands in the Pennsylvanian as the objective. The Muddy and Dakota sands have been penetrated and contained oil.

MONTANA

Toole County

A good completion in the Border Field is reported in the Askalta Oil Co., Ltd.'s No. 2 Farbo, SW SE NE, Section 2-37-4w. It cut the Vanalta sand at 2,511-50 feet and is making 200 bbls. per day. The Hannah-Porter Co.'s No. 3 Iowa Holding, NW SE SE, Section 2-37-4w, is drilling at 2,300 feet, and the Cosmos Petroleum Co.'s No. 3 Iowa Holding, NW NE SE, Section 2-37-4w, is spudding.

The Oregon Oil Syndicate's No. 1 Barthelote, SW NE SE, Section 20-36-2w, is underreaming the 8¼-inch at 1,500 feet to set at 1,710 feet.

Carbon County

The Ohio Oil Co.'s No. 1 Chapman, C SW SW, Section 2-7s-21, Dry Creek, is drilling at 5,660 feet, and its No. 1 Robinson, NW NE SE, Section 3-7-21, has rig up. Same company's No. 2 Montana Industrial, C NW NE, Section 11-7-21, is rigging up, and its No. 2 Souders, C NE SW, Section 2-7-21, is a cellar.

The Carbon Oil & Gas Co.'s No. 1 Armstrong, SW cor. NW, Section 7-7-22, is drilling at 5,506 feet in the Mowry shale.

The Ohio Oil Co.'s No. 1 Kuchinski, NW SE NE, Section 15-7s-22, Golden Dome, is spudding.

Liberty County

The California Co.'s No. 1 Ross, NE SE NE, Section 3-33-6e, Utopia district, is spudding. The Western Natural Gas Co.'s No. 1 Hicks, C NW NE, Section 26-37-4e, Whitlash district, is drilling at 500 feet after cementing the water string at 230 feet.

Glacier County

L. B. O'Neil's No. 1 McNeil, C NE, Section 23-35-5w, Cut Bank gas field, which was reported a completion last week, gauged 5,500,000 feet from sand at 2,734-67 feet.

R. C. Tarrant's No. 1 Hogland, NW cor. SW, Section 13-34-6w, is straightening crooked hole at 2,400 feet in the base of the Colorado shale.

The Fulton Petroleum Co.'s No. 1 Blackfeet, SW NE NE, Section 28-36-12w, Milk River district, is drilling at 2,810 feet after cementing cave at 2,770-90 feet.

Teton County

The California Co.'s No. 1 Sullivan, NW NE NW, Section 34-27-7w, Bynum district, is drilling at 2,500 feet, and Earl Oil Corp., Ltd.'s No. 1 Gad, SE cor. NE, Section 22-22-8w, Sun River district, is recementing cave at 3,780 feet.

Cascade County

Charles Merz and others' No. 1 Sheffelt, SE NW, Section 4-21-4e, Black Horse Lake, is shut down for the 10-inch at 440 feet, and Buscher & Cassidy's No. 1 Johnson, NE cor. SE, Section 19-22-3e, Benton Lake, is bottomed at 1,010 feet and lowering the 8¼-inch.

UTAH

The Utah Southern Oil Co.'s No. 1 Balsey, C NE NE, Section 31-23-21,

(Continued on Page 81)

GULF COAST FIELDS AND WILDCATS

Week Ending November 27
All Rotary

BARBERS HILL—CHAMBERS COUNTY

Company, farm and location—	Remarks—
Mills Bennett Prod. Co.'s No. 1 Gulf fee, Henry Griffith League, 50 ft. out of NE cor., Strip 15	Shale and lime 4,565 ft.; cem. 7-in. (O.D.) casing 4,556 ft.
Mills Bennett Prod. Co.'s No. 6 Wilburn, Henry Griffith League, 125 ft. W of No. 5 in center of tract	Drlg. salt 2,159 ft.; top 1,406 ft.
Mills Bennett Prod. Co.'s No. 5 Gulf-Fisher, Wm. Hodges Sur., 75 ft. from N line, 191 ft. W of No. 4	Drlg. hard sandy lime rock 1,124 ft.
R. E. Ferrell's No. 2 Wilburn, Henry Griffith League, 215 ft. W of No. 1 in center of 45-acre tract	Drlg. rock 975 ft.
Gulf Prod. Co.'s No. 6 Wilburn, Henry Griffith League, 50 ft. from S line of lease and 400 ft. W of No. 3	Drlg. shale and lime 3,453 ft.
McAlbert Oil Co.'s No. 2-A Higgins, Wm. Bloodgood Sur. (W.O.)	Set 22 ft. of 3-in. screen 5,230 ft.; pumping oil and salt water.
McAlbert Oil Co.'s No. 3 Woodward (D.D.), W. H. Hodges Sur.	Deepened to sand 5,348-59 ft.; set 10 ft. of 3-in. screen.
McAlbert Oil Co.'s No. 1 Wilburn (D.D.), Henry Griffith League	Rig up to deepen 5,080 ft.
Nat Hunter Prod. Co.'s No. 3-B Barber, Henry Griffith League, 538 ft. from E line, 70 ft. from S line of tract	Sand showing oil 4,695-4,719 ft.; cem. 7-in. casing 4,684 ft.
Nat Hunter Prod. Co.'s No. 1 S. E. Morgan, 225 ft. N of S line in center of Strip 2 (4.4 acres), Henry Griffith League	Drlg. salt 1,724 ft.; top 1,376 ft.
Nat Hunter Prod. Co.'s No. 1 J. M. Fitzgerald, Henry Griffith League, 75 ft. from W line and 125 ft. from S line of tract	Spudded.
Sinclair Oil & Gas Co.'s No. 9 Wilburn, Wm. Hodges Sur., 50 ft. N of S line and 550 ft. W of No. 6	Drlg. salt 1,521 ft.; top 1,462 ft.
Sinclair Oil & Gas Co.'s No. 10 Wilburn, Wm. Hodges Sur., 50 ft. S line, 100 ft. W of No. 9	Drlg. rock 1,072 ft.
Sinclair Oil & Gas Co.'s No. 11 Wilburn, Wm. Hodges Sur., 125 ft. W of No. 8 and 45 ft. S of N line	Lime rock 1,078 ft.; cem. 13-in. (O.D.) casing on bottom.
Sun Oil Co.'s No. 2 Higgins, Wm. Bloodgood Sur., 1,095 ft. W of No. 1 and 50 ft. N of S line	Cap rock 947-67 ft.; cem. 16-in. (O.D.) casing.
Sun Oil Co.'s No. 12 Wilburn, Wm. Hodges Sur., 50 ft. from N line and 75 ft. W of No. 11	Drlg. salt 1,826 ft.; top 1,496 ft.
Sun Oil Co.'s No. 2 Winfree (W.O.), W. D. Smith Sur., 50 ft. from SW line and 150 ft. of S line	Cutting out screen 5,359 ft.
The Texas Company's No. 7 Wilburn, Henry Griffith League, 116 ft. S of Humphreys Corp.'s No. 8-H Kirby	Set 44 ft. of 4½-in. screen 4,422 ft.; comp. flowing 1,400 bbls. pipe line oil, 1-in. choke.
The Texas Company's No. 2 Lawrence, Henry Griffith League, 240 ft. from E line and 412 ft. from N and S lines of strip	Sand showing oil 4,425 ft.; cem. 7-in. (O.D.) casing 4,395 ft.

HUMBLE—HARRIS COUNTY

Southern Coastal Oil Co.'s No. 3 Perkins, John Jones Sur., 150 ft. N of No. 2	Derrick.
Sun Oil Co.'s No. 25 Bender, W. B. Adams Sur., 1,155 ft. from C of R.R. on an extension of the N line of the Bender North Addition and 8 ft. S	Salt 3,268-98 ft.; plugged to 3,850 ft.; set 111 ft. of 4½-in. screen; pumped water; shut down.
Sun Oil Co.'s No. 26 Bender, W. B. Adams Sur., 310 ft. W, 20 deg. N of No. 25	Drlg. shale and shell 3,064 ft.
The Texas Company's No. 27 Koehler, J. B. Stevenson Sur., 717 ft. E and 603 ft. S of NW cor. of SW fee tract	Drlg. shale, boulders and lime 3,866 ft.
The Texas Company's No. 46 Stevenson fee, 1,630 ft. N and 1,690 ft. W of SE cor. of J. B. Stevenson Sur.	Drlg. sand and shale 4,314 ft.

FORT NECHES—ORANGE COUNTY

The Texas Company's No. 1 Polk-Kuhn-Glass, 260 ft. E and 1,545 ft. S of SW cor. Marshall Beaucham Sur., in the T. J. Notgrass Sur.	Drlg. sticky shale 3,588 ft.
The Texas Company's No. 2 Kuhn, 537 ft. S and 150 ft. W of NE cor. of the Mary E. Hall Sur. No. 2	Location.

BIG CREEK—FORT BEND COUNTY

Gulf Prod. Co.'s No. 62 Davis, M. Young Sur., 400 ft. NE of No. 19 and 600 ft. SE of No. 57	Drlg. gumbo and lime 2,195 ft.

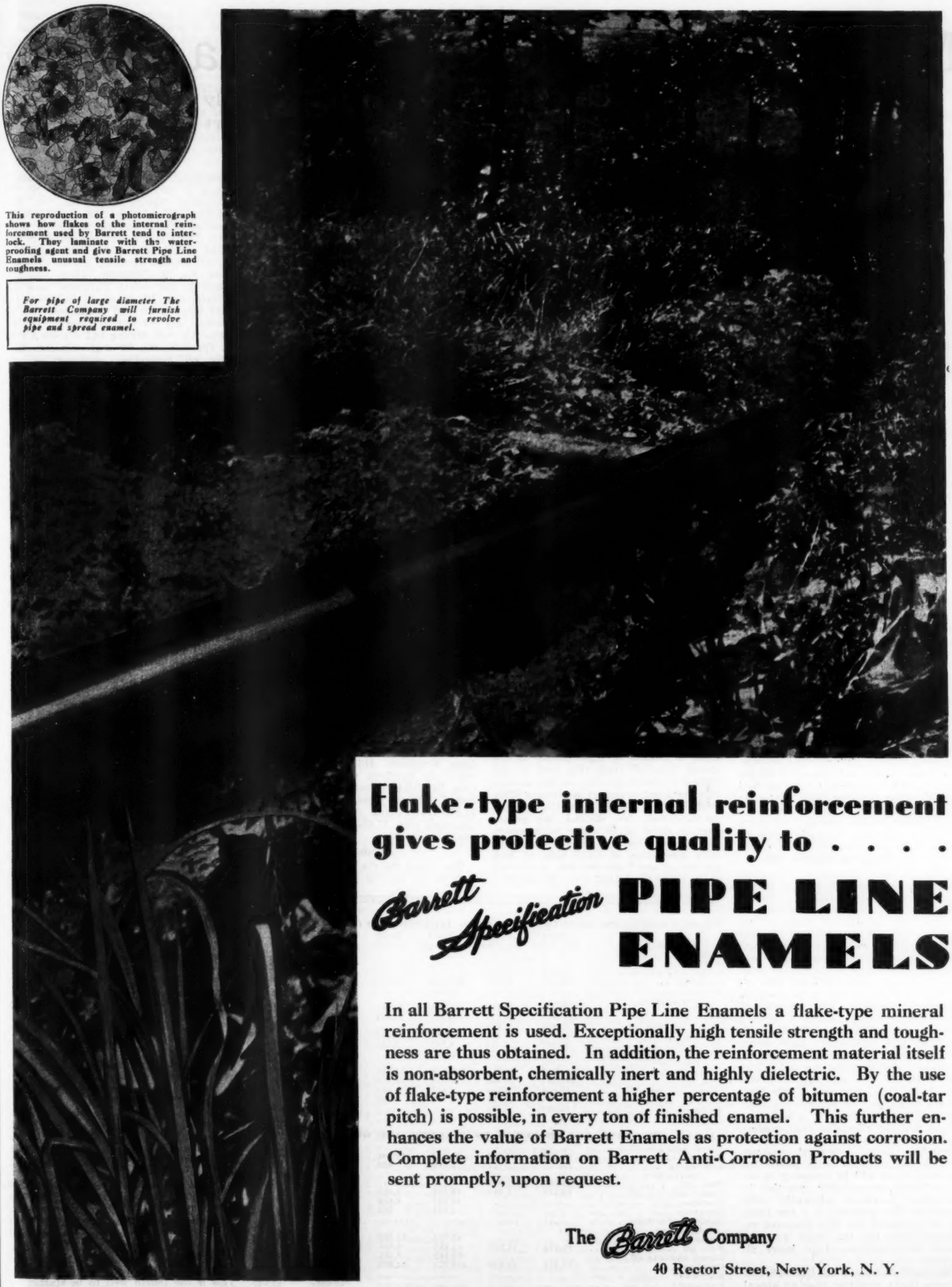
HULL—LIBERTY COUNTY

Daisetta and Liberty Oil Co.'s No. 1 Bashara (W.O.)	Cutting and pulling screen to deepen 3,880 ft.

(Continued on Page 68)

This reproduction of a photomicrograph shows how flakes of the internal reinforcement used by Barrett tend to interlock. They laminate with the waterproofing agent and give Barrett Pipe Line Enamels unusual tensile strength and toughness.

For pipe of large diameter The Barrett Company will furnish equipment required to revolve pipe and spread enamel.



Flake-type internal reinforcement gives protective quality to . . . .

Barrett Specification PIPE LINE ENAMELS

In all Barrett Specification Pipe Line Enamels a flake-type mineral reinforcement is used. Exceptionally high tensile strength and toughness are thus obtained. In addition, the reinforcement material itself is non-absorbent, chemically inert and highly dielectric. By the use of flake-type reinforcement a higher percentage of bitumen (coal-tar pitch) is possible, in every ton of finished enamel. This further enhances the value of Barrett Enamels as protection against corrosion. Complete information on Barrett Anti-Corrosion Products will be sent promptly, upon request.

The Barrett Company

40 Rector Street, New York, N. Y.

May Further Curtail California Output

Crude Production Limit May Be Set at 450,000 Bbls. Daily After January 1. Considering Economic Committee Report

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Nov. 28.—There was no great change in the current rate of crude oil production in California during the past week, and present indications point to the probability that state production will continue to hover around 500,000 bbls. per day up through the close of December. With the advent of the new year, however, it is quite likely that a further substantial curtailment will be effected in order to reduce state production to economic levels. Technically, the existing curtailment program expires December 31, 1931, although several fields approved the recommendation made last year that curtailment work continue until such time as there is no further necessity for an artificial limitation on production. The allowable daily production of Kettleman Hills is subject to revision on January 1, 1932, however, as the existing pegged allowable of 60,000 bbls. per day holds good only for the current year.

The economic committee of eleven, headed by Earl Wagy of the Standard Oil Co., started an economic survey in Los Angeles during the current week in order to determine as far as possible refinery requirements for 1932. This report, which has just been completed, has been taken under advisement by the operators' general committee on state-wide curtailment. It is quite probable that the recommendations of this committee will coincide, or closely approximate the recommendations made at Chicago by the American Petroleum Institute's subcommittee on refinery statistics and economics and the Federal Oil Conservation Board. Decreased shipments of petroleum from California to foreign and domestic ports, together with the necessity of effecting a further reduction in Pacific Coast stocks, presages a further substantial reduction in California's allowable daily production.

May Set Output at 450,000 Bbls.

While it is a matter of conjecture pending completion and release of the committee of eleven's report, it is the prevailing opinion that California's allowable daily production will be set somewhere in the neighborhood of 450,000 bbls. This is somewhat below earlier predictions and is occasioned by a substantial reduction in both current shipments and anticipated liftings. The allowable daily production to be assigned Kettleman Hills during 1932 may require considerable discussion before a definite allowable is established. Operators in this field, who, incidentally, have shown a commendable degree of co-operation, are desirous of stepping up the allowable of 60,000 bbls. per day to 75,000 bbls. daily. This additional 15,000 bbls. per day would penalize other fields, however, and for this reason it is logical to assume that the allowable daily production of Kettleman Hills will remain at 60,000 bbls. daily. A general readjustment in the potential daily production of several fields will be necessary in order to effect an equitable reduction in California's maximum allowable daily production. The potential of a few fields may be increased but this projected realignment will for the most part be toward the establishment of lower allotments.

The recent decision of the United States Supreme Court, resulting from an appeal taken by several Santa Fe Springs operators to dissolve a temporary restraining order issued by Judge Hazlett of the Superior Court in Los Angeles, strengthens the position of the state with respect to the waste of natural gas. It might not be amiss to mention, however, that the United States Supreme Court only sustained the manner of production and did not pass on the constitutionality of the entire statute. The court held that the state had sufficient police power to require operators to conform with a reasonable gas-oil ratio. This fits in admirably with the procedure followed by the Department of Natural Resources but limits the power of the state as far as actual waste is concerned, as this phase of the subject has not yet been passed upon. Stripped of legal phraseology, the United States Supreme Court told the petitioners that it would not dissolve the temporary restraining order and by doing so, automatically placed the proceedings back on calendar in the Superior Court for final adjudication. The period of emergency is over as far as Santa Fe Springs is concerned but future application of the gas conservation law in other areas can no longer be retarded by injunctions and writs of prohibition due to the establishment of a favorable ruling and precedent by the Supreme Court.

Kettleman Hills

The new wells were put on production in the north dome of Kettleman Hills during the past week, one being finished in the Elliott zone and one in the deep Ochsner zone. The former was the Kettleman North Dome Association's No. 58-2-P, brought in flowing 3,140 bbls. of clean 66.8 gravity oil per day from 7,133 feet. This new well, which is producing 50,000,000 feet of natural gas in addition to the oil, is flowing through two ninety-six sixty-fourths inch beans under a pressure of 1,280 pounds on the casing. The oil from this well is the highest recorded gravity, so far as can be ascertained, from any Kettleman Hills producer. The Standard Oil Co. finished its jinx well, No. 65-29-J, but subsequently killed it in order to complete final preparations. It showed an initial daily production of 4,415 bbls. of 36.4 gravity oil and 8,000,000 feet of natural gas per day from 7,885 feet. No. 65-29-J is located in the Huffman area and offsets the Superior Oil Co.'s Huffman lease in the extreme west end of the field. There are 23 wells producing in the north dome at present, in addition to five shut in. The North Dome Association has eight wells producing, the Standard nine, Associated two and the Petroleum Securities, Shell, Superior and Union one each. Drilling operations in the north dome are slowly but surely being reduced and, unless conditions show a substantial improvement, there will be very little drilling in the north dome during 1932. Several wells now drilling will of course be completed next year, but with the enormous potential already established it is logical to assume that operators will begin applying the brakes. The Standard has already done so and consequently has only three incompleted drilling wells under way at present. No. 1 Burbank of the Petroleum Securities in the middle dome of Kettleman Hills is showing oil and gas on the ditch at 9,250 feet, following the coring of a black oil sand.

Increased demand for natural gas from Kettleman Hills is reflected in the purchases of the Pacific Gas & Electric Co. and Southern California Gas Co., which concerns bought 339,962,000 feet more in October than during September. Purchases of the former company increased 124,907,000 feet, while the Southern California Gas Co. increased its purchases 215,055,000 feet. Total gas production in Kettleman Hills during October amounted to 10,333,325,000 feet, an increase of 670,695,000 feet over the previous month. Wet gas delivered to natural gasoline plants in October totaled 3,370,253,000 feet, an increase of 647,029,000 feet over the previous month. Gas blown into the air in October was 274,131,000 feet, or 63,519,000 feet more than during the preceding month. The Pacific Gas & Electric Co. transmitted 1,692,931,000 feet from Kettleman Hills during October, while the Southern California Gas Co. took 842,769,000 feet during the same period. Natural gasoline production was 11,879,415 gallons during October, as compared with 15,635,165 gallons in the preceding month.

Dominguez

The Union Oil Co. added another new well to its list of producers in the Dominguez Field of Los Angeles Basin when it successfully completed No. 27 Callender flowing 1,070 bbls. of 30.6 gravity oil and approximately 5,600,000 feet of natural gas per day from 5,050 feet. The Union's next completion in this field should be No. 14 Hellman, which is at present rotating ahead at 4,606 feet. No. 26 Callender, which was finished in the fourth Callender zone approximately 10 days ago, is producing 230 bbls. of oil and 13,833,000 feet of natural gas per day at present. The oil from this well, testing 44.1 degrees A.P.I., is approximately 10 degrees higher than any oil heretofore produced in the Dominguez Field. The company is at present considering the advisability of killing No. 26 Callender because of the excessive gas oil ratio which it has shown up to date. The Union's limited drilling operations in the Dominguez Field is due to lease obligations and follows a suspension in development work extending over a period of several years. The Shell is drilling two new wells on its Reyes lease in this district, one of which, No. 40, should be tanking oil within the next 30 days.

Potrero

York & Smullin have apparently opened up a new deep zone in the Potrero Field of Los Angeles Basin, but this potentially productive horizon is not expected to become a factor of any great consequence. Several productive zones have been developed in the Potrero town lot area, but none of them has shown sustained production due to the small amount of oil sand present and limited gas accumulation. York & Smullin's No. 1 Blinn picked up the new deep zone in the Potrero town lot section between 6,681 and 6,700 feet. Circulation had been lost in this well upon reaching the 6,700-foot level and the hole was bailed dry in an effort to regain circulation, at which point the well started to flow at the rate of approximately 500 bbls. per day. The flow was immediately killed and consequently no accurate gauge is available as to the actual amount produced. The cement job appears to be effective at least temporarily, notwithstanding the fact that the cement apparently failed to set.

There is very little development work under way in the Potrero Field, although it is quite likely that three wells now being deepened will be carried down to the new Blinn zone. The Bellview Oil Syndicate completed No. 6 Grohs, a new well in the Meyer zone at Santa Fe Springs but the initial daily output, 1,070 bbls., is cutting 20 per cent water. This new well was bottomed at 4,925 feet and is producing from only 20 feet of formation, as the 6⅝-inch combination string was landed and cemented through perforations at 4,905 feet. Development work has reached a low level in the Playa Del Rey Field and this district is expected to remain inactive due principally to its overdeveloped condition and partially depleted sands. Bergman & Albright made a preliminary production test on their No. 3 Venice at 6,208 feet a few days ago, but this well failed to result in a natural flow and will at best show only small production when put on the beam. The abandonment of two deep wells by the Superior Oil Co. has put a damper on deep zone exploration in the Huntington Beach town lot area and this field will consequently cease to be a threat as far as deep zone production is concerned. The Standard is pouring foundation for No. 50 Emery, a new well in the West Coyote Field of Los Angeles Basin, and rig construction should get under way within the next few days. This is the fourth well to be started by

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	68,690
Fuel oil	.....	.....	.....	.....	.....	71,950
Diesel and gas oil	93,605	13,372	.....	.....	1,566,803	3,293,683
Gasoline	155,897	22,271	407,722	58,246	12,011,301	17,758,584
Kerosene	.....	.....	.....	.....	187,934	.....
Coastwise—						
Crude oil	539,590	77,084	188,719	26,960	19,412,890	14,224,306
Fuel oil	294,818	42,117	389,069	55,581	12,127,128	16,950,402
Diesel and gas oil	47,698	6,814	.....	.....	1,362,655	1,517,896
Gasoline	307,804	43,972	359,682	51,383	13,140,959	11,440,367
Kerosene	11,977	1,711	8,081	1,154	300,776	151,436
Naphtha distillates	.....	.....	.....	.....	4,952	.....
Exports—						
Crude oil	100,011	14,287	233,383	33,340	6,595,014	6,354,116
Fuel oil	143,783	20,540	142,149	20,450	12,007,359	15,848,751
Diesel and gas oil	16,479	2,354	6,932	990	3,195,254	3,971,638
Gasoline	148,868	21,267	2,143	306	7,675,568	14,250,685
Kerosene	12,559	1,794	.....	.....	1,640,522	3,145,249
Lubricants	.....	.....	.....	.....	36,353	45,484

TANKER SHIPMENTS, SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	279,088
Gasoline	80,725	11,532	71,440	10,206	1,036,094	1,030,671
Lubricants	.....	.....	3,000	429	38,236	27,796
Coastwise—						
Fuel oil	80,558	11,508	.....	.....	3,185,796	3,097,770
Diesel and gas oil	39,763	5,680	10,170	1,453	400,852	343,182
Gasoline	.....	.....	46,127	6,590	3,938,689	3,882,578
Kerosene	.....	.....	4,921	703	284,095	208,548
Naphtha distillate	.....	.....	.....	.....	49,780	.....
Exports—						
Crude oil	.....	.....	83,760	11,966	494,511	59,993
Fuel oil	99,332	14,190	61,795	8,825	1,589,858	993,026
Diesel and gas oil	.....	.....	52,952	7,565	535,866	467,589
Gasoline	89,802	12,829	104,321	14,903	4,250,476	3,645,846
Kerosene	.....	.....	.....	.....	802,322	570,271
Lubricants	.....	.....	.....	.....	25,693	33,579

the Standard in this field during the past 60 days and is the first project to be drilled on the Emery lease for six months. On the Murphy Coyote lease the Standard is making good footage in Nos. 108, 109 and 110, all of which should be on production within the next 30 days. This development work will not exert any appreciable effect on field production as the wells in question are being finished in the upper zones. The Allison Snydicate has been experiencing some fair showings in its Inglewood outpost and, while there has not been a sufficient amount of sand opened up to justify a production test, the outlook is rather encouraging at 5,565 feet. The Baldwin Hills Syndicate is rigging up No. 1 Sentous, a projected deep zone test in the Inglewood Field, and spud should be made some time during the coming week.

San Miguelito

The Continental Oil Co.'s No. 1 Grubb's initial completion in the recently discovered San Miguelito Field, located approximately midway between the Ventura Avenue and Rincon Fields, is holding up fairly well at 600 bbls. per day. This, the discovery well, came in flowing approximately 1,000 bbls. per day a little over two weeks ago and, despite the lack of substantial gas pressure, is flowing quite steadily. The Continental will probably shut in No. 1 Grubb some time during the next 10 days unless arrangements are completed in the meantime to provide adequate pipe line facilities to move this oil out of the field. Only a limited amount of tankage has been provided and this should be filled within a short time. Only approximately 5 miles of pipe line will be necessary to connect this well up with existing facilities either at Ventura Avenue or at Rincon. The Continental is not obliged to undertake any additional development work in the San Miguelito Field until some time in February, 1932, and will undoubtedly take advantage of this condition. The Richfield Oil Co., which controls approximately 900 acres of the Robson ranch about 4 miles west of the Continental's Grubb property in the San Miguelito Field, contemplates starting a new wildcat in that area along about the middle of December. The Richfield's new test as tentatively located is less than 2 miles northeast of the Rincon Field and presumably located on the same general fold. The Barnsdall and Rio Grande are surveying the route for a road to be constructed on a portion of the Carrega lease situated 5 miles north of Lompoc in Santa Barbara County. This lease parallels the Gato Ridge structure, where the Barnsdall and Rio Grande opened up a new field earlier this year.

Elwood

The decision of operators in the Elwood Field to refrain from exploitation of the recently discovered deep zone in the Sespe formation has eliminated the necessity of drilling any more new wells in this field for the present. The decision to retard deep zone development stopped development work in the nick of time as preparations had already been started to redrill and deepen three upper zone producers. There are only two incompleted drilling projects under way in the Elwood Field at present and both of them are scheduled for completion in the upper, or Vaqueros, zone. The Santa Barbara Mesa, which has experienced a little revival of work during the past year, has three drilling wells at present and another month may see the starting of one or two more. This drilling is of no special consequence, however, as work up to this time has been productive of only small production.

The Ohio Oil Co. has filed an abandonment notice on No. 1 Oakley, a deep test in the Goleta Gas Field of Santa Barbara County, at 6,186 feet. Slight showings were encountered in No. 1 Oakley at 4,778 feet, but upon the failure to secure commercial production the company drilled ahead and is abandoning at 6,186 feet as further work was not justified in view of the fact that the General Petroleum's No. 3 More was a duster in the Tejon at 6,912 feet. The Ohio is not expected to quit-claim its 150-acre Oakley lease but will hold it for the present as a protection against further prospecting in the immediate future. The General Petroleum, discoverer of the Goleta gas field, recently abandoned two tideland projects, No. 1 on permit No. 138 at 4,931 feet, and well No. 1 on tideland permit No. 139 at 2,052 feet. In the Carpenteria area, the Pacific Finance Corp. acquired the validation hole on tideland permit No. 202 and has resumed drilling operations at 1,800 feet. The Western Gulf Oil Co.'s No. 1 Bradley in the Santa Maria area has resolved itself into a deep conclusive test but is still in the brown shale notwithstanding that the bit has already passed the 8,150-foot level. The Ventura Avenue Field, like most other areas throughout the state, is showing a further reduction in drilling operations and at the present rate of decline will have only a few strings of tools in operation at the end of another 60 days. There are still five or six incompleted drilling projects under way in the Ventura Avenue Field but most of them should be completed early in 1932.

San Joaquin Valley

Drilling operations in the San Joaquin Valley have shown a tendency to increase during the past 30 days and a further gain is anticipated during the course of the next 30 days. Some of this work is predicated on the assumption that higher prices will prevail for crude

(Continued on Page 71)

MT. PLEASANT DAILY PRODUCTION ESTIMATED 22,000 BBLS. OPEN FLOW

By Special Correspondent

MOUNT PLEASANT, Mich., Nov. 28.—Oil production in the Mount Pleasant Field now has exceeded the production of the Muskegon Field, the first large area to be opened up to development in Michigan. Complete production figures for September show that to October 1 the Mount Pleasant Field had produced a total of 5,368,000 bbls. of oil since the first well was opened in February, 1928. On the same date the figures for the Muskegon Field showed a total production of 5,191,000 bbls. since the opening of the field in December, 1927.

Production for August in the Mount Pleasant Field was 250,000 bbls., the latest monthly production figures available. However, the Conservation Department report from Lansing, Mich., states "The September reports show the highest production for one month in the state since February, 1930."

Daily potential production in the Mount Pleasant Field is estimated at 22,000 bbls. open flow. During October alone 8 wells were brought in in the Mount Pleasant Field, 6 of them in the new east pool, Greendale Township, and 2 in the Vernon Pool, 10 miles north of Mount Pleasant. These 8 wells had a total initial daily production of 14,000 bbls. Two of the wells had initial productions of 3,000 bbls., 3 of 2,000 bbls. and 2 of 1,000 bbls.

Proven acreage in the Central Michigan Pool is estimated as follows:

Pool—	Acres oil	Acres gas
Mount Pleasant	8,000	.....
Broomfield	.....	3,000
Clare	.....	750
Vernon and Leaton	2,000	.....
Vernon	.....	1,500
Total	10,000	5,250

Survey of Field

A recent survey of the Mount Pleasant Field showed that 221 wells were producing oil at the open flow capacity of about 20,000 bbls. daily. A great number of new wells are under way. Oil wells range in daily open flow production from 5 bbls. to 3,600 bbls. In the past several months alone more than a half dozen wells have been brought in with flows exceeding 1,000 bbls. of oil daily.

Veteran oil men are confident that the natural resources of this area have been only scratched. There are scores of acres of proven territory yet to be drilled while hundreds of other acres where wildcat drilling is going on soon may be added to the chart of proven acres.

Isabella County has two natural gas pools. Twenty-one gas wells have been

(Continued on Page 71)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status—
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	7,350	suspended
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	6,238	suspended
Westwood Oil Co., No. 2 Hermosa, Los Angeles Co.	6- 4-14	2,151	suspended
Baxter Pet., No. 1 Hermosa, Los Angeles Co.	5- 4-14	rig	suspended
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	2,700	suspended
Pacific Shore Oil Co., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
Lawndale Pioneers, Inc., No. 1 Peck, Los Angeles Co.	20- 3-14	3,079	fishing
Wilmington Consd., No. 1 Watson, Los Angeles Co.	17- 4-13	1,012	cleaning out
Ranger Pet. Co., No. 1 Watson, Los Angeles Co.	28- 4-13	3,638	oil showing
Avalon Park Dev. Co., No. 1 Watson, Los Angeles Co.	17- 3-13	....	material
Pedro Pet. Corp., No. 1 San Pedro, Los Angeles Co.	14- 5-14	rig	suspended
Brubaker, W. O., No. 1 Van Nuys, Los Angeles Co.	11- 2-15	2,700	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	2,200	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2- 9	3,250	suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,370	suspended
Jones, W. L., No. 1 Bell, Los Angeles Co.	31- 2-12	116	suspended
Weist Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	4,902	fishing
Blinn & Gray, No. 1 Montebello, Los Angeles Co.	6- 2-11	5,011	suspended
Yellowstone Oil Co., No. 1 Alhambra, Los Angeles Co.	24- 1-13	3,919	suspended
Yellowstone Oil Co., No. 2 Alhambra, Los Angeles Co.	19- 1-12	2,015	suspended
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26- 1-17	1,004	basalt?
Caballero est., No. 1 Calabasas, Los Angeles Co.	23- 1-16	1,460	suspended
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,960	suspended
Simi Oil Co., No. 1 Calabasas, Los Angeles Co.	18- 1-17	3,901	br. sh. drilling
Simi Oil Co., No. 2 Calabasas, Los Angeles Co.	18- 1-17	208	cable tools
Marble, Willard, No. 1 Chatsworth, Los Angeles Co.	6- 2-16	1,200	hd. sd. drilling
Superior Oil Co., No. 1 Newport, Orange Co.	27- 6-10	4,203	sd. sh. drilling
Ajax Pet., No. 1 Newport, Orange Co.	21- 6-10	6,047	br. sh. drilling
Vaqueros Major, No. 1 Tideland, Orange Co.	32- 5-11	1,022	suspended
Beck, Alfred, No. 1 Corona, Riverside Co.	8- 4- 6	1,110	suspended
Alberta Oil Co., No. 1 Elsinor, Riverside Co.	35- 2- 2	3,435	suspended
Duncan, N. L., No. 1 Sagebrush, Riverside Co.	8- 4- 6	1,157	suspended
Colan Dev. Co., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,392	fishing
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-17-15	620	sd. sh. drilling
Woods, D. H., No. 1 Salton Sea, Imperial Co.	7-11-16	514	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519	suspended
Borderland Oil Co., No. 1 Point Lomas, San Diego Co.	30-16- 3	5,124	suspended
South Bay Oil Co., No. 1 Border, San Diego Co.	31-18- 2	1,243	suspended
Itasca Pet. Co., No. 1 Mesa, San Diego Co.	33-18- 1	1,635	hd. sd. drilling
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 6- 8	5,250	suspended
Oklahoma Oil Corp., No. 1 Palms, San Diego Co.	25-11- 8	510	cleaning out

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status—
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-33	8,150	br. sh. drilling
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-35	3,450	suspended
Ohio Oil Co., No. 1 Goleta, Santa Barbara Co.	16- 4-28	6,186	abandoning
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas—shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	producing gas
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	6,912	plug 6,625 ft.
General Pet., No. 133 Goleta, Santa Barbara Co.	21- 4-28	2,030	suspended
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	2,053	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	2,047	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	suspended
Bowles Oil Co., No. 140 Goleta, Santa Barbara Co.	21- 4-28	2,065	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	2,004	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	2,012	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	2,010	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	2,010	suspended
Bellview Oil Co., No. 159 Goleta, Santa Barbara Co.	24- 2-29	2,099	suspended
Strickland & Tippett, No. 1-A Goleta, Santa Barbara Co.	19- 4-27	4,886	will set pipe
Sovereign Oil Co., No. 1 Guadalupe, Santa Barbara Co.	20-10-35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Pacific Finance Co., No. 1 Carpenteria, Santa Barbara Co.	.....	1,800	resume work
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
Continental, No. 1 San Miguelito, Ventura Co.	23- 3-24	6,750	new oil field
Bell, H. H., No. 1 South Mountain, Ventura Co.	22- 3-21	1,450	rd. sh. drilling
Pure Oil Co., No. 1 S. F. Canyon, Ventura Co.	15- 4-21	2,591	suspended
San Pedro Oil Co., No. 2 Sespe, Ventura Co.	13- 4-21	3,725	sd. sh. drilling
Magu Synd., No. 1 Oxnard, Ventura Co.	17- 1-21	5,225	may abandon
Graham & Loftus, No. 1 Goose Lake, Kern Co.	20-27-22	4,895	sd. sh. drilling
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	7,000	suspended
Milham Expl. Co., No. 6 Buttonwillow, Kern Co.	8-28-23	4,000	gas showing
Purman, T. H., No. 1 McKittrick, Kern Co.	22-29-21	501	rigging up
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	5,380	testing
General Pet., No. 1 Belridge, Kern Co.	30-28-21	7,290	br. sh. drilling
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,222	suspended
Rio Cal Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Wicker, Sy., No. 1 Arvin, Kern Co.	12-30-28	3,850	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	5,910	suspended
Osborn, Colter, No. 1 Weed Patch, Kern Co.	15-30-29	3,465	suspended
Osborn, Colter, No. 2 Weed Patch, Kern Co.	15-30-29	2,005	pump. test
Fullerton Oil Co., No. 1 Semitropic, Kern Co.	25-27-23	765	redrilling
Standard, No. 1 Devils Den, Kern Co.	14-25-18	1,600	suspended
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	17-26-18	2,950	cleaning out
Signal Oil Co., No. 1 Blackwell Corner, Kern Co.	15-26-19	106	suspended
United Kern Pet., No. 1 Mojave, Kern Co.	26-10-14	1,065	suspended
Meridian Oil Co., No. 1 Mojave, Kern Co.	11- 9-15	3,910	granite?
Kendall Dev. Co., No. 1 Mojave, Kern Co.	27-11- 9	880	hd. sd. drilling
Harding, J. B., No. 1 Mojave, Kern Co.	5-10-10	1,030	redrilling
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	6,025	suspended
Descanso Oil Co., No. 1 Tejon, Kern Co.	31-11-19	mtl.	building rig
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	6,197	suspended
Kingsburg Explt. Co., No. 1 Kingsburg, Fresno Co.	30-16-23	340	sd. sh. drilling
Kent & McDonald, No. 1 Carrizo, San Luis Obispo Co.	3-32-22	2,390	br. sh. drilling
Trav-El Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-32-22	2,450	cleaning out
Indian Dome Oil Co., No. 1 Edna, San Luis Obispo Co.	26-31-12	3,380	resume work
Martin, J. D., No. 1 Edna, San Luis Obispo Co.	5-31-13	2,990	redrilling
Cent. Coast Inv. Co., No. 1 Atascadero, S. Luis Obispo Co.	5-28-12	1,430	br. sh. drilling
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	1-29-12	1,650	suspended
Pacific Inland, well No. 1, Monterey Co.	19-23-15	2,060	gr. sd. drilling
Brown, W. F., No. 1 Parkfield, Monterey Co.	15-23-14	1,051	suspended
Guess, E. B., No. 1 Monocline, Kings Co.	7-21-21	6,197	cleaning out
Lacal Gas Co., No. 1 Dudley Ridge, Kings Co.	32-22-20	rig	rigged up
Irma Inv. Co., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,345	gas well—idle
Irma Inv. Co., No. 2 Dudley Ridge, Kings Co.	7-23-20	rig	suspended
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-23-20	411	rigging up
Kettleman O. & G. Co., No. 1-A Dudley Ridge, Kings Co.	20-23-20	1,194	gas well—idle
Valley Expl. Co., No. 1 Dudley Ridge, Kings Co.	12-23-19	1,440	cleaning out
Valley Expl. Co., No. 2 Dudley Ridge, Kings Co.	12-23-19	1,141	shut in
Valley Expl. Co., No. 3 Dudley Ridge, Kings Co.	18-23-19	....	material
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-23-17	4,511	deepening
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	suspended
Tulare Basin Gas Co., well No. 1, Kings Co.	17-23-19	rig	rigging up
Tulaco Oil Co., No. 1 Corcoran, Tulare Co.	20-22-22	rig	suspended
Ducor Pet. Co., No. 1 Ducor, Tulare Co.	14-24-27	2,200	suspended
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,092	suspended
Ellis & Stanford, No. 1 Tulare Lake, Tulare Co.	20-24-23	1,920	suspended
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	7,694	suspended
Orinda Pet., well No. 1, Contra Costa Co.	32- 1- 3	2,120	suspended
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	1,000	hd. sd. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,750	suspended
Hilderbrandt, R., No. 1 Crows Landing, Stanislaus Co.	36- 6- 7	rig	rigging up
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	3,040	suspended
San Joaquin Expl. Co., No. 1 Los Banos, Merced Co.	36-10- 9	....	location

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Work Increasing in Central Ohio Area

District Has 23 Completions and 25 New Operations. Chatham Township, Medina County, Active. Progress of Kentucky Developments

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Nov. 30.—In the Central Ohio division more new wells were brought in than for many weeks, including several nice shallow oil wells, reported from the Chatham Field in Medina County.

In the old Lima Field of northwestern Ohio a few wells were reported completed and a large number of old-time producing wells were pulled out on account of not producing enough oil to pay for the pumping.

In the Tiffin Field in Seneca County, Byron Jones drilled a light gas well in No. 1 on the Jacob Ash farm, Section 6, Liberty Township. A. Stuckey also drilled a light gas well in No. 2 on his own farm, while M. E. Kiser hit a small gas well in No. 2 on the Mary House farm in Section 34, same township. The Stuckey well was in Section 32, same township. J. W. Zeis is drilling No. 1 on his own farm, Section 26, and R. E. Greene is drilling on the T. C. and B. G. Shoull farm, Section 30, same township. R. M. Kinney and others abandoned Nos. 1, 2, 3 and 4 Laird, Langerman and others farm, Section 17, Clinton Township, same county.

Lake Shore & Southwestern Oil & Metal Co.'s No. 1 C. Jeffers farm, Section 8, Providence Township, Lucas County, is a dry hole, and the company is drilling No. 1 on the Ed Calkins farm, Section 29, same township.

McPharon, Cook and Miller's No. 2 on the Bowman-Billhart farm, Section 21, Tymochtee Township, Wyandot County, on the south bank of the Sandusky River, is showing a nice volume of gas.

John Doblinger is drilling No. 1 on the S. Betts farm, Section 8, Monclova, Lucas County, about 20 miles west of Toledo.

In the old Prairie Depot Field of Montgomery Township, Wood County, A. L. Johnson's No. 4 & Co., Inc., abandoned Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24 Henry Burns farm, SE Section 23. The Sun Savings Bank abandoned Nos. 1 and 2 Jacob Faatz farm, NW Section 8, and the Ohio Oil Co. abandoned Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15 and 16 L. and A. Sprink farm, SW Section 21; Nos. 1, 3, 4 and 6 C. St. Clair farm, SW Section 15, and Nos. 12 and 16 Holliday-Hamilton farm, SW Section 9, all in the same township and county.

A. T. Carpenter No. 2 and others abandoned Nos. 1 and 2 William Bollinger farm, SW Section 12, Portage Township, Wood County. Murray B. Chidester pulled out his old No. 3 on the Case and Case 64 acres, Section 26, Plain Township, same county.

CENTRAL OHIO

Work is sprucing up in the Central Ohio Field, as the week showed 23 completions, 8 producers with an initial of 190 bbls., 6 dry holes and 9 gas wells, while there were 13 locations staked and 12 were spudding in, a total of 25. Adjacent to this development 5 wells were found in Meigs County and 2 in Hocking County.

In Ashland County, the Ohio Fuel Gas Co. reports a dry hole in No. 1 L. W. Keener farm, Section 15, Jackson Township, there being no sand found.

In Lorain County, Daugherty & Dempsey found a fairly good gas well on the Jess and Anna Lewis farm, Section 15, Avon Township. Ramage & Willis are drilling on the Frederick Armbruster farm, Lot 89, Grafton Township, and McMillan and others have a rig up on the H. F. Eggers farm, Section 6, Carlisle Township.

In Medina County, Chatham Township, considerable activity was displayed and some very nice oil wells were uncovered. The Preston Oil Co.'s No. 20-1,490 on the C. and E. Clapp farm, Lot 5, had an initial production of 30 bbls. from 364 to 418 feet, and in the Berea sand. Oko Oil & Gas Co. failed to find any sand in No. 19 on the Henry Essig farm, Lot 19, but No. 20 is credited with an initial production of 20 bbls. from 327 to 385 feet. Edson Sons Co.'s No. 31 Marcus A. Frank farm, Lot 20, showed 60 bbls. initially from 422 to 450 feet. Same company's No. 25 George W. Packard No. 1 farm, Section 4, same township, produced 10 bbls. the first 24 hours from 383 to 400 feet. No. 26, same farm, produced 10 bbls. from 352 to 383 feet, and No. 27 same farm, produced 25 bbls. initial from the Berea sand from 326 to 368 feet, all in Chatham Township. Preston Oil Co. made a location for No. 21 C. and E. Clapp farm, Lot 5, and drilling No. 8-1,494 on the Charles Gunsal farm, Section 19, same township.

In Holmes County, Washington Township, Wiles and others staked a location on the Christian Sprang farm, Section 27.

In Coshocton County, Mill Creek Township, the Ohio Gas Light & Coke Co. is drilling No. 9 H. E. Arnold farm, Section 2.

Summitt County

In Summitt County, Copley Township, White & Bacon's test on the Kinfield-Thornton farm, Lot 47, is a 25-bbl. oil initial producer, along with 500,000 feet of gas in the Newburg formation from 3,240-60 feet. Wiser Oil Co. found an average gas well in No. 2 Shiltz & Bailey farm, Lot 85, Bath Township.

In Richland County, Franklin Township, Cherown and others have a rig on the Samuel Simpson farm, Section 9.

In Licking County, Licking Township, Ohio Fuel Gas Co. has a light gas well in No. 1-5,372 G. F. Richardson farm, Lot 13.

In Muskingum County, Brush Creek Township, the Ohio Fuel Gas Co., struck a gas well on the Carrie Staker farm, Sections 3 and 10, in the Clinton lime formation. Engle and others drilled to a total depth of 4,075 feet on the Orin Perdew farm, Section 4, same township, and nothing worth while was found, but it is stated the hole will be drilled deeper.

In Athens County, Waterloo Township, the Standard Natural Gas Co.'s No. 1 David Young farm, Section 12, is reported with an initial close to 15 bbls. from the Berea from 1,031-36 feet. Clyde Cody is drilling No. 4 Charles Ackley farm, in fractional Section 6 of Carthage Township.

In Stark County, Brendall and others have a rig on the W. L. Keller farm, Section 11, Lawrence Township. In Jackson Township, same county, Brendall and others have a fair gas well in No. 1 Stewart & Hoover farm, Section 21, also drilling No. 1 C. and M. Yearkey farm, same section, also drilling No. 6 Lake Cable farm, Section 23, and have a rig in for No. 1 William Zuber farm, Section 24. Medford Oil & Gas Co. has a nice gas well in No. 1 Whitmyer heirs farm, Section 5, in the Clinton farm at 4,189 to 4,214 feet. Athens Oil & Gas Co. has a rig on the M. Kisner farm, Section 10. William Pfeiffer made a location on the Eli Snyder farm, Section 11. Ohio Fuel Gas Co. has a gas well in No. 2-5,547 Charles H. Young farm, Section 15. East Ohio Gas Co. is drilling No. 1 Besse J. Slagel farm, Section 14, and No. 1 Eva M. Sisler farm, Section 16, and made a location for No. 4 T. K. Harris farm, Section 34, all in Jackson Township, the most active area in the entire field.

In Fairfield County, Richland Township, Perry Sturm and others have a light gas well on the Jess H. Hardwick farm, Section 32, in the Berea sand from 777 to 779 feet. City Natural Gas Works' No. 2 Herbert Tripple farm, Section 2, Berne Township, is an average gas well in the Berea from 570 to 571 feet.

In Knox County, Union Township, Hulse-Kundtz, Inc., drilled a dry hole in No. 7 J. H. Colopy farm, Section 23, from 774 to 784 feet.

In Guernsey County, Center Township, the Center Gas Co. test on the L. A. Wharton farm, Section 15, was dry in the Gordon sand from 1,745-50 feet.

In Belmont County, Keller and others' No. 4 Nellie Rossiter farm, Section 35, Somerset Township, was drilled deeper to a total depth of 2,018 feet and is dry. In Wayne Township, Payne & Swarthout found a dry hole in No. 6 A. C. Shephard farm, Section 21, at a depth of 700 feet.

Other Outside Wells

In Hocking County, City Natural Gas Works of Lancaster drilled in a light gas well in No. 2 on the William Weidner farm, Section 17, Marion Township, in the Clinton lime from 2,532 to 2,661 feet. In Falls Gore Township, same county, the Griffin Oil Co.'s No. 2 J. W. Geiger farm, Section 32, was dry in the Clinton lime at a total depth of 3,083 feet.

In Meigs County, Stewart & Ross' No. 6 on the S. C. and Gazelle Staneart farm, Section 6, Bedford Township, is a very fair gas well in the Maxon sand from 1,036-45 feet. Chase and others' No. 1 G. W. Ward farm, Section 4, Rutland Township, is an average gas well in the Maxon sand from 1,025-62 feet. Ohio Fuel Gas Co.'s No. 1-5,561 J. J. Lee farm, Section 21, Bedford Township, is a gas well in the Maxon sand. Gribble and others No. 1 Nellie Morris farm, Section 35, Salisbury Township, is a rig up. Same parties have a light gas well in No. 1 Mittie Lyman estate, same section, in the Maxon sand from 875 to 927 feet. F. O. Royalty Co.'s No. 2 Cora L. Russell farm, same section is a fair gas well in the Maxon sand from 982 to 1,018 feet. Simpson & Rice drilling on the Thomas Jackson farm, Section 11, Sutton Township, same county. Federal Oil & Gas Co. moved a machine to drill on the C. C. Snodgrass farm, Section 36, Orange Township, same county.

INDIANA-ILLINOIS

Illinois failed to report any completions or new development starting, while in Indiana only one completion was reported, being A. E. Mylen, trustee, No. 1, 500 feet from the south line and 400 feet from the east line of the George C. Morgan farm, SW Section 26, Washington Township, Pike County, which was a dry hole at 1,200 feet. The Ohio Oil Co. abandoned No. 1 on the Laura C. Stewart farm, NE Section 30, Madison Township, same county.

In western Illinois, Sugar Loaf Township, St. Clair County, William McPeak and others abandoned Nos. 1, 2 and 3 William and Louisa Lindermann lots, SE Section 21.

KENTUCKY

Just at this time the Logsdon Valley Field, about 3½ miles west of Munfordville, the county seat of Hart County, is attracting more attention than any part of western Kentucky, due to bringing in of wells above the average, and bids

(Continued on Page 80)

GOOD PROGRESS STILL BEING MADE AT CHESTNUT RIDGE, PA., TEST

By Staff Correspondent

PITTSBURGH, Pa., Nov. 30.—Interest in the test of the Dunn Mar Oil & Gas Co., jointly with the Consumers Fuel Co. on the Anna Grimm farm, which lies on the Chestnut Ridge anticline in Bullskin Township, Fayette County, is quickened by the fact that the hole is now 2,000 feet deep and good progress still being made. In passing through the Injun sand, the bailer brought up water with a slight cast of oil on it, showing a greater porosity in that structure than the Injun sand in the test of the Phillips Gas & Oil Co. on the Darr farm in Cook Township several miles northeast. There was also one small pocket of gas struck. The hole is now cased to a depth of 1,900 feet, and holding. This test is scheduled to go to the Warren and Speechley sands.

Completions continue at about the same pace with a few scattered tests not in exact line of production being drilled. Lack of water in some instances is responsible for the shutting down of drilling wells and is again felt in some of the industrial reservoirs. Lack of anything like winter weather added to the existing gas surplus is causing some of the main gas distributing companies to ask for relief from some of their gas purchase contracts.

During the week in the eastern fields, there were 18 completions reported, of which 7 were producers with an initial production of only 49 bbls., and 11 were gas wells, many of which were fair wells. There were also 3 dry holes reported. Southeast Ohio continued to furnished most of the new production.

Southeast Ohio

The best gas well completed in Southeast Ohio was the second test of Donahue and others on the W. Dwyer farm, near Starr, Section 35, Brown Township, Vinton County. It was drilled in the Grit sand at 875 feet and is showing for 800,000 feet a day. In Licking County, about 4 miles south of Newark City, on Lot 1, Licking Township, the Ohio Fuel Supply Co. drilled a test on the James Richardson farm to 1,500 feet and in the Cinnamon sand. It is rated good for slightly over 200,000 feet a day.

The shallow drilling in Medina County was responsible for most of the new production. There, on Lot 5, Section 16, Chatham Township, the Preston Oil Co. completed a good well in its No. 15 on the E. T. and A. R. Clapp farm. It went to 423 feet and produced 25 bbls. the first day after shot. On Lot 4, Section 13, of the same township, E. R. Edson & Son Co. completed two more wells on the No. 1 George W. Packard lease, Nos. 26 and 27. No. 26 is making 2 bbls. a day after shot, from a depth of 413 feet, and No. 27 produced 5 bbls. the first day after shot and at a depth of 400 feet. In the same township, but Lot 10, Section 9, Heines and others

(Continued on Page 80)

Personal Paragraphs About Oil Men

P. V. McGivern, Tulsa representative of Baker Oil Tools, Inc., was in St. Louis last week.

* * *

H. A. Holzer, president of the United Iron Works, Pittsburg, Kans., called at oil company offices in Tulsa last week.

* * *

Alfred A. Foote, petroleum engineer, who has been in Mississippi the past year, spent several days in Houston, Tex., on business.

* * *

Clyde Gibson of Gibson-O'Donohoe Drilling Company of Wichita Falls, Tex., is improving after undergoing an appendicitis operation.

* * *

E. F. Davis, a vice president of the Shell Oil Company and chief geologist in California, has arrived at The Hague from the United States.

* * *

B. F. McCann, Jr., formerly with the Midwest Refining Company at Denver, Colo., has been transferred to the Stanolind Oil & Gas Company at Tulsa.

* * *

George Prussing, safety engineer of the Union Oil Company of California, recently addressed the Bilge Club on safety matters and the proper handling of oil.

* * *

B. M. Nowery, general superintendent of the United Gas Public Service Corporation, Houston, Tex., has been on a several weeks' business trip in Montana.

* * *

Mills Bennett, president of the Mills Bennett Production Company, Houston, Tex., who has been on a business trip to eastern points, has returned to his office.

* * *

Mert McDonald, assistant superintendent of the Coffeyville refinery of the National Refining Company, has been transferred to the company's refinery at Petrolia, Canada.

* * *

Charles B. Nickolson, zone agent on the Texas Panhandle for the Prairie Oil & Gas Company, has been spending several days at the Tulsa office of the company, and visiting in Okmulgee, Okla.

* * *

J. W. O'Byrne, a pioneer operator in Southwest Texas, and associated with others in discovering the Randado and Schoolfield-O'Byrne Pools, is recovering from an operation in a San Antonio hospital.

* * *

Vern Gray, farm boss, with the Continental Oil Company at Hominy, Osage County, Oklahoma, was awarded a wrist watch, an honor the company makes to the man reporting the lowest lifting costs and the best kept lease of any of the company's properties in Kansas and Oklahoma.

* * *

Mrs. Hazel R. Rounds of the Pure Oil Co. at Tulsa has been transferred to the company's offices at Fort Worth, Tex., as chief clerk of the Texas division. Mrs. Rounds spent more than a year at the Columbus, Ohio, offices installing the present system and compiling records of the eastern producing properties.

* * *

Paul N. Boggs, Jr., son of Paul N. Boggs, Sr., vice president of the Union Oil Company of California, has announced the arrival of Paul N. Boggs, III., born in Los Angeles November 22. Both the baby and Mrs. Boggs, the former Dorothy Dwan of the motion picture screen, are doing nicely.

* * *

H. H. Kister, district geologist at Shawnee, Okla., with the Stanolind Oil & Gas Company, was elected president of the Shawnee Geologists Society, which includes the territory of Greater Seminole and central Oklahoma. J. C. Finley, with Phillips Petroleum Company, is vice president, and Robert Brown, with Amerada Petroleum Corporation, is secretary-treasurer.

Ray Sheehan, of the Sheehan Pipe Line Construction Company, is recovering from a recent appendix operation.

* * *

A. C. Fletcher, field superintendent for Mid-Continent Petroleum Company, Deer Creek, Okla., spent several days in Casper, Wyo., recently.

* * *

W. A. Sherman, chief clerk in the production department, Gulf Coast division, The Texas Company, has motored to Monterrey, Mexico, for a vacation trip.

Men of the Industry

Charles F. Huff

Charles F. Huff, manager of the Columbia Oil & Gasoline Corporation, subsidiary of the Columbia Gas & Electric Company, was born in Oil City, Pa., March 5, 1882, and his experience in the oil and gas business began at the age of 15 when he got a job in the engineering department of the South Penn Oil Company. He continued with this company for 12 years, serving as chain man, gang foreman and district foreman. From 1909 to 1913 he was superintendent of the Siegel district for the United Natural Gas Company; from 1913 to 1917, superintendent of the Clarion Gas Company; 1917, general superintendent Pennsylvania Gas Company; 1921, general superintendent United Natural Gas Company; 1925 to 1928, vice president United Natural Gas Company; 1928, manager Preston Oil Company (Columbia Gas & Electric). In 1930 he was made general manager of the Columbia Oil & Gasoline Corporation.

Mr. Huff has devoted much time to the development of more economical drilling and operating equipment. He had direct charge of drilling the Kane well for the United Natural Gas Company in Elk County, Pennsylvania, which at a depth of 7,925 feet was until recently the deepest well in the State. He designed and assisted making special couplings and letting in tools used in running 6,605 feet of 8¼-inch casing in this hole. During 1913 he designed and built, in co-operation with C. W. Gleason, one of the first gasoline extraction plants in the Appalachian district at Black Run Station, Miolo, Clarion County, Pennsylvania, for the United Natural Gas Company.

Mr. Huff enjoys hunting and golf. He is a member of the Columbus Gun Club and Amateur Trap Shooting Association of America. He is a Mason and a Shriner. He resides in Columbus, Ohio.

F. Hovig, of the Babcock-Wilcox Tube Company, Beaver Falls, Pa., was a visitor in Tulsa last week.

* * *

E. J. Sullivan, president of the E. T. Williams Oil Company, is in Washington, D. C.

* * *

R. W. Stone, president of the Stone Oil Company, Houston, Tex., has been away from his office for a week's vacation and rest.

* * *

Mr. and Mrs. Joseph C. Barrett, of Turner Valley, Alberta, are spending a few months with Mr. Barrett's parents in Petrolia, Ontario.

* * *

J. Skliros has been appointed general manager of Iraq Petroleum Company, Ltd. Mr. Skliros has acted in this capacity since January, 1930.

* * *

Gordon R. Thomason, Mid-Continent representative of Neilan Company, Ltd., spent the Thanksgiving holidays with his parents in Waco, Tex.

* * *

R. W. Howe, vice president and general manager of the Atlantic Pipe Line Company, Dallas, Tex., spent several days in Houston, Tex., on business.

* * *

W. E. English, who has been chemist to the Egyptian government's petroleum refinery at Suez for six years, has returned to London, his post having been taken by an Egyptian.

* * *

W. N. Finnegan, Jr., chief statistician of the Humble Oil & Refining Company, Houston, Tex., has been confined to his home for 10 days because of illness.

* * *

T. L. Blair, a director with the National Transit Company, has retired after 36 years of service and will become the treasurer of Venango County, Pennsylvania.

* * *

W. A. Tipton, formerly southwestern representative of the Durabla Manufacturing Company, Dallas, Tex., is now connected with the sales department of Wheatley Brothers.

* * *

A. H. Bell, general superintendent of California Division, Continental Oil Company, was the guest speaker at the monthly meeting of the Los Angeles Petroleum Accountants Society and chose as his subject "Modern Oil Well Drilling."

* * *

Meryl Mannschreck, with Mid-Continent Petroleum Corporation and a field representative in the East Texas area with headquarters at Longview, Tex., has been transferred to Midland, Tex., in the western part of the State.

* * *

A party including E. J. Nicklos, vice president of the Continental Oil Company; Dan Withers and Henry Frese, from Ponca City, Okla., recently flew from Great Falls, Mont., to Lethbridge and Calgary, Canada, in the company's monoplane.

* * *

Roger D. King, director of Arthur Brown & Company, Ltd., of London, and of Abco Petroleum Company, Paris, France, has been in the Mid-Continent on business and has been a guest of Jacob France, president of the Mid-Continent Petroleum Corporation, in Tulsa.

* * *

Charles F. Meyer, chairman of the executive committee of the Socony-Vacuum Corporation and president of the Standard Oil Company of New York, accompanied by Arthur F. Corwin, vice president of the Standard Oil Company of New York, and Frederick S. Fales, vice president of Socony-Vacuum and Standard Oil Company of New York and president of the Socony-Vacuum Transportation Company, arrived in Los Angeles for a week's stay, during which they motored to Kettleman Hills and inspected the coastal fields in addition to studying the general situation on the Pacific Coast.

11 New Twins for WESTERN GAS COMPANY

Three Cooper-Bessemer units rated 780 B.H.P. at 180 r. p. m. in compressor station near Fort Bliss, Texas

ELEVEN direct-driven compressors will send New Mexico gas to Arizona and Mexico at high pressure. All engines are twin-tandem, double-acting. Three of the stations contain three units apiece; the fourth has a pair. Each station can be expanded to hold eight units. What stronger testimony could a gas company give to the engineering excellence of Cooper-Bessemers?

Cooper-Bessemer TYPE 19's

THE COOPER-BESSEMER CORPORATION
MOUNT VERNON, OHIO GROVE CITY, PENNSYLVANIA
201 East First St. 1313 Magnolia Bldg. 640 East 61st St. Suite No. 301, 25 W. 43rd St.
Tulsa, Oklahoma Dallas, Texas Los Angeles, California New York, N. Y.
BRANCH OFFICES IN ALL PRINCIPAL OIL FIELDS

Oil Industry Equipment and Supplies

MacCLATCHIE ACQUIRES DRILL PIPE PROTECTOR

The straight-hole guide and drill-pipe protector formerly known as the "Reinie" has been taken over by the MacClatchie Manufacturing Co., Compton, Calif., which has improved the design and construction preparatory to manufacturing and marketing it as a MacClatchie product.

The rubber now is moulded around a re-enforcing sleeve that runs the full length of the protector. Tests have shown that this re-enforcement will add to the wearing qualities of the rubber by keeping it in the correct position at all times. Four large vertical channels in the rubber provide circulation passage. The guide is supplied in two types, the sub-type, as illustrated, with pin and box, or with double pin. The usual practice among operators is to run a sub-type guide immediately above the drill collar and to space others out along the drill pipe wherever desired.

The principal engineering feature of the guide is a construction that permits the drill pipe to turn freely inside the guide, while the guide remains stationary in the formation. It is asserted that this avoids practically all wear on the rubber except what occurs while the drill pipe is being raised or run in. This construction centers the drill pipe accurately, thereby drilling a straighter hole. Further information may be obtained from the company.

WELDING TORCH OF NEW DESIGN PUT ON MARKET

The Air Reduction Sales Co., Lincoln Building, New York, has placed on the market a welding torch, style 9800, of strong, sturdy construction, designed for the medium and heavy classes of oxyacetylene welding. New features include ribbed handle, new type mixing head nut, oxygen and acetylene ball seat type needle valves, needle valves easily repacked and an unusually soft flame characteristic.

The use of a wrench to adjust the tip each time one is changed has been eliminated through the design of the new mixing head nut. A skirt has been added to the hexagonal nut, allowing it to be loosened or tightened by hand. If for any reason the mixing head nut cannot be loosened by hand, a wrench can be applied to the hexagonal nut.

The new style ball seat type needle valve was adopted after extensive field trials. The principal feature is a ball seat of stainless steel, strong, hard, and durable. Repacking, if necessary, can be accomplished easily.

The soft flame is achieved by reversing the method of bringing the gases to the tip. In this torch the oxygen enters the torch head at the side and the acetylene through the center, assuring intimate mixing of the oxygen and acetylene before entering the tip.

NOTES ABOUT TRADE LITERATURE

Two bulletins issued by the Kerotest Manufacturing Co., Pittsburgh, Pa., describe the Kerotest type 101 well hookup and the Kerotest forged steel adjustable control chokes or flow beans.

Tube-Turns, Inc., Louisville, Ky., is is sending out a bulletin announcing its new series 1R fittings.

Bristol's free-vane air-operated recorder controller, a new development, is described in catalog No. 4001, distributed by the Bristol Co., Waterbury, Conn.

The International Nickel Co., Inc., New York, is sending out a reprint of an article which appeared in Metal Progress on "Gears Made of Armor Plate," by Robert E. Bultman, assistant metallurgist of the White Motor Co.

Two new bulletins issued by the Pacific Pipe & Supply Co., Los Angeles, Calif., are "Papico Natural Gas Odorizing System" and "Perfection Duplex Trap."

The Pennsylvania Pump & Compressor Co., Easton, Pa., has published two recent bulletins, No. 216, covering its OMS type of sleeve and ball bearing multistage centrifugal pumps, and No. 217, dealing with its LSD type of single-stage pumps.

"Small Motors" is the subject of a 30-page loose-leaf bulletin, No. 167, issued by the Wagner Electric Corp., 6400 Plymouth Avenue, St. Louis, Mo. The bulletin is divided into eight parts describing single-phase, polyphase, and direct-current motors in fractional horsepower ratings.

A 16-page bulletin on gas saturation control issued by the Foxboro Co. of Foxboro, Mass., contains an interesting discussion of the problems encountered in the process of saturating natural gas.

Operating and consulting engineers in charge of boiler plant and industrial furnace operation will be interested in the new bulletin published by the McLeod & Henry Co., Troy, N. Y. This bulletin describes many different types of superrefractory blocks, bricks and complete settings.

A new house organ, "The Armstrong Trap Magazine," is to be published monthly by the Armstrong Machine Works, Three Rivers, Mich., manufacturer of inverted bucket type traps to remove condensate from steam, air or other gases.

UNIQUE LOGARITHMIC CHART

The Visco-Meter Corp. laboratory, Buffalo, N. Y., announces the completion of a new logarithmic chart of viscosities. This chart is said to save time and calculation by means of its instantaneous indication S.A.E. rating of any oil plotted. It also provides a simple determination of viscosity at important temperatures for both lubricating and fuel oils. The chart is 26 by 29 inches. Its ranges are as follows: (a) Universal Saybolt, from 40 to 200,000 seconds; (b) Fahrenheit temperature, from 20° to 330°; (c) Centigrade temperature, from 30° to 166°; (d) Furol Saybolt, from 30 to 20,000 seconds. There is a table of Redwood at Engler multipliers for the range of the chart.

DITCHER FOR LAYING SMALL PIPE LINES ANNOUNCED

A new development in small ditchers has been announced by the National Equipment Corp., Milwaukee, Wis. The new ditcher, the Parsons Model 14, was designed for laying small pipe lines, gas and water mains, house connections and conduits. Easy portability was desired to reduce the costs for short extensions, service connections and similar trench work over a widespread area.

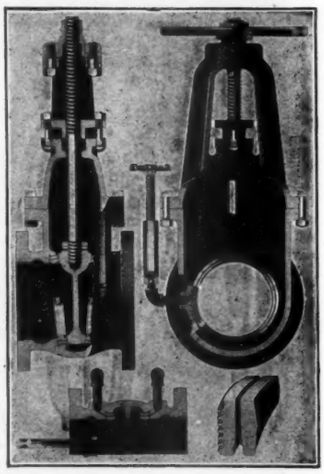
Mounted on pneumatic tires, the Parsons 14 is instantly available to travel to the job under its own power. No auxiliary equipment is necessary, and the Model 14 is ready for digging as soon as it is on the job.

The machine is only 7 feet 3 inches high and 6 feet 9 inches wide, including conveyor. It will cut a trench 6, 9 or 12 inches wide and 4 feet 6 inches deep. There are 20 digging speeds, forward and reverse, any one of which may be obtained through the operating levers, the highest speed being 16 feet per minute. Road traction is obtained in four different speeds ranging up to 6.4 miles per hour. In one case in Iowa the Model 14 ditcher traveled over 80 miles, from one town to another, in 14 hours.

Another development for digging efficiency is found in the special design of a front discharge type of self-cleaning bucket. For digging narrow trenches from 6 to 12 inches wide, this bucket has proved to be particularly advantageous. The buckets and chain are cast integral and are not attached to separate chains, as is done on the larger machines. The power plant consists of a McCormick-Deering industrial tractor unit.

LUBROTITE GATE VALVE RECEIVES HARD TRIALS

The Lubrotite gate valve, manufactured by the Reading-Pratt & Cady Co., Inc., Bridgeport, Conn., because of its lubricant-seal principle of tight seating, is especially adapted for gas lines, gasoline lines, and general oil refinery service. A unique duct system introduces a lubricant seal between the seating surfaces. The valve is sealed tight even though the seating surfaces have become damaged by coke deposits, abrasions, or corrosion.



The valve has been tested in the severest of service connected with the oil and gas industries. A group of Lubrotite valves has given months of service on a manifold carrying sour kerosene. The valves are made in both Pratt & Cady standard and extra heavy iron body patterns, and in Reading electric cast steel. The general dimensions are the same as those of nonlubricated valves and they can be used for replacement service without changing the piping system. All valves seat absolutely tight without the use of the lubricant seal and can be used, if desired, as regular nonlubricated valves.

Lubricant seals are supplied for various services—air, gas, water, chemical, petroleum products, etc. The lubricant seals are packed in convenient pocket sized boxes—24 cartridges to a box. Only a small amount of lubricant is needed for an application.

NEW SIZE IN CAMERON MOTORPUMP ANNOUNCED

New sizes have been added to the Cameron line of small general service centrifugal motorpumps manufactured by the Ingersoll-Rand Co., 11 Broadway, New York. These pumps are now made in 1-inch discharge and upward.

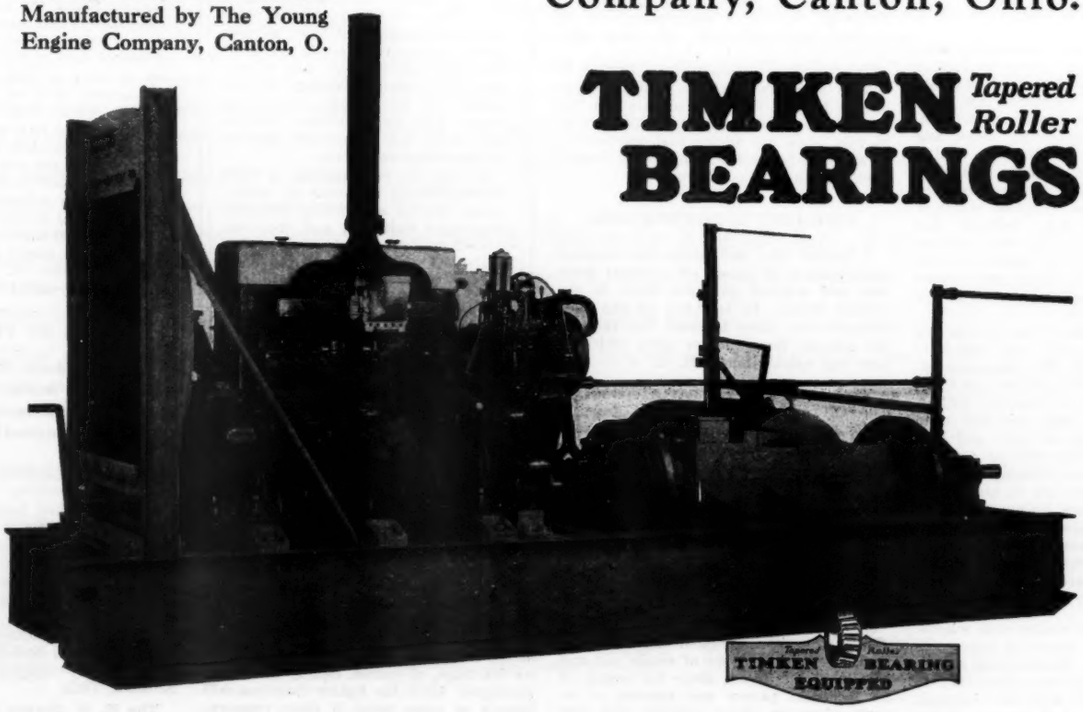
Pump and motor are assembled as a single unit with a common shaft, producing a compact, lightweight pump which requires little floor space and can be easily installed. No foundation or base plate is needed. The discharge nozzle may be turned to any one of four positions.

There are only two bearings. These are of the ball type and require lubrication only once a year. There is only one stuffing box, which is easily accessible. The impeller is made of bronze and is hydraulically balanced. Renewable bronze wearing rings and shaft sleeve are provided. These pumps are used against moderate heads for a great variety of services.

OIL field equipment that lasts longest and costs the least for upkeep is almost invariably equipped with Timken Bearings . . . No other type of bearing is geometrically designed to carry all thrust, radial and combined loads without the aid of auxiliary supports . . . No other type of bearing can be set up with such extremely close radial running clearance and held to that clearance indefinitely . . . No other bearing has the tremendous load carrying capacity and endurance of Timken-made alloy steel. The Timken Roller Bearing Company, Canton, Ohio.

YOUNG Diesel-type drilling engine equipped with 6 Timken Bearings in the transmission. Manufactured by The Young Engine Company, Canton, O.

TIMKEN *Tapered Roller* BEARINGS



Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

HOW COMPLETE THE WELL?

Would you consider it possible to complete a well containing some 90 feet of drilling tools? If so, what method would you recommend for finishing the well? Our company and its predecessors in interest have spent some 10 years and almost $400,000 in an effort to drill a well in southeastern British Columbia. A total depth of 3,265 feet was reached and the well was shot with 500 quarts of nitroglycerin. The hole bridged, but upon running the tools the next day the well flowed over the rig, making a fine showing of oil. The three years since then has been spent in an effort to get the well on production.

At the present time there is some 90 feet of lost tools in the hole, which is bridged around 2,900 feet. Repeated efforts have failed to fish out the lost tools. We have now made a contract with a field superintendent who has had wide experience in drilling oil wells and who says he can finish the well by using a diamond drill. We are shipping in a diamond drill and plan to act on his advice. Do you think we are taking the right course? Please explain the difference between an ordinary rotary and a diamond drill. I omitted saying that the formation is exceedingly hard and contains numerous crevices.—E. V. L.

You do not make it wholly clear whether the lost tools are above or below the bridge at 2,900 feet. Engineering advice on your problem is to the effect that it should be practicable with the diamond drill to complete the well because if the tools are above the bridge, or in it, it should be possible to set a whipstock in such a way as to permit drilling around them and finishing the hole at any required depth. The whipstock is a long bar of steel tapered on one side in such a manner that the diamond drill, or a string of cable tools, will be deflected from their true course in the hole and drill off to one side.

By proper handling it should be possible to do this with the diamond drill, but the size of the hole that can be made with the diamond drill will depend upon the size of the machine available. Holes as large as 6⅝ inches can be drilled with a powerful machine. If a smaller machine is used it may be that a much smaller hole will have to be drilled. In the event the smaller hole is drilled there may be need later to run in the tools at intervals to keep the hole clean, which would not be necessary if a full size hole were drilled with cable tools or with a rotary outfit.

The ordinary rotary drill is different from the diamond drill in various respects, but the primary difference is that the diamond drill is equipped with a special type bit set with black diamonds that will cut through any type of rock that may be encountered in a hole.

Both drilling systems depend upon the rotation in the hole of a long string of drill pipe at the end of which is either the diamond drill or a fishtail or rock bit.

The drill pipe on the diamond drill outfit is forced into the hole under control of a hydraulic feed device which is desirable where hard drilling is to be done. On the rotary outfit the drill pipe is lowered into the hole by unwinding a cable from a drum. At the end of the cable is attached a square length of drill pipe known as the "kelly" or drill-stem. This fits into a square hole in a rotating turntable which gives the motion to the rest of the drill pipe attached below the "kelly."

If you desire more details of these various methods of drilling it is suggested that you obtain from Walter H. Jeffery, Second National Bank Building, Toledo, Ohio, a copy of his new book, "Deep Well Drilling," in which descriptions of all methods are contained. The book sells for $6.

If you have a competent driller in charge of the work with a good outfit, he should be able to complete this hole for you in good shape, and it would be wise to rely upon his advice and suggestions because he is on the ground and knows about the actual conditions.

PIPE LINE TEMPERATURES

I would like to obtain the average temperatures of crude oil, natural gasoline and natural gas pipe lines in the United States. In working on the flow through pipe lines I would like to have the average temperatures upon which to base my calculations.—H. H. C.

The article by William G. Heltzel in The Oil and Gas Journal of June 5, 1930, contains the information you seek so far as it pertains to crude oil. For answer to that part of your question that relates to natural gas consult the "Natural Gas Handbook" by John C. Diehl, Metric Metal Works of the American Meter Co., Inc., Erie, Pa. This department is unable at this time to refer you to any authoritative source of information regarding the temperature of natural gasoline pipe lines.

The U. S. Bureau of Mines, Bartlesville, Okla., has compiled data on temperatures and analyses of crude oils and gasolines and if you write for copies of its technical papers and reports of investigations on those subjects you will receive help in your problems.

You can find much valuable information dealing with flow through pipe lines in the Annual Pipe Line editions of The Oil and Gas Journal published since 1926 and dated: October 7, 1926; June 16, 1927; August 30, 1928; August 29, 1929; June 5, 1930, and June 4, 1931.

GAS EXISTS IN LIQUID STATE

It never has been clear to me how the space available in a sand could hold all the gas and oil that come out of it in the course of the life of a pool. Although I understand that the gas which forces the oil to the well is under great pressure, which compresses it, nevertheless it still is a puzzle to me how so much of it can be stored in so relatively small a space. Can you explain this for me?—O. R. N.

Explanation of the phenomenon which puzzles you lies in the theory, commonly accepted by petroleum geologists, that in many cases the gas which issues from the well in the form of a vapor exists in a liquid state in the sand. In his work on "Increasing the Recovery of Petroleum" Wentworth H. Osgood says on this point:

"Experience has taught that the pressure on the sand, commonly called 'rock pressure,' is in almost all cases dependent upon the depth of the horizon. The question naturally arises: What is the condition of the oil and gas in a virgin field, prior to exploitation? To obtain an accurate answer to this, each field must necessarily be treated separately. In general, however, crude oil is made up of a series of volatile hydrocarbons. The heavier fractions, of course, liquefy at normal pressures. Even the lighter fractions will liquefy at some point if their temperature is below their critical temperature.

"The lighter gases liquefy at some definite pressures when treated separately, whereas, when treated in conjunction with the heavier gases commonly found in crude oil, the process of liquefaction is hastened and occurs at lower pressure. Actual experience has shown that these lighter hydrocarbons are produced in larger volume during the initial flush production period of a field than later on when the rock pressure has been materially reduced. This is due, no doubt, to the more ready vaporization of the lightest fraction when the pressure on the sand is reduced by the open or partially restricted flow of the well.

"From these assumptions the theory is deduced that the so-called 'gas pockets' common to the average oil field are not in fact pockets of free gas, except as to the undissolved methane and, probably, ethane. Rather, it must be considered that the bulk of the gas produced was originally in a fluid state, vaporized out of the oil by the sharp reduction in pressure caused by the drilling in of the well. In fact, in certain fields of enormous volume of gas production, the pore space, or voidage, available could not possibly hold volumetrically the amount of gas produced, even under the high pressures found to exist. Recourse must then be had to the theory that the gas exists in a liquid form in the sand and that as the pressure is released the liquids vaporize, or to the theory of absorption.

"The gas held in solution by the oil is an especially important factor in the recovery of oil from the formations in which it is found. Under the same conditions of temperature and pressure, a particular oil will absorb a fixed proportion of a particular gas, but this proportion of coefficient of 'absorption,' as it is called, varies with each oil and each gas. The gas is held absorbed or dissolved in the oil in the same way that soda water is charged with carbon dioxide. The proportion of gas absorbed is lessened under high temperature but is greatly increased under high pressures, in accordance with Henry's law of gases. Enormous quantities of gas are held in solution under the high initial pressure found in some oil wells. Some of the constituent gases are condensed at these high pressures just as in a compressor plant and, as long as high enough pressure is maintained, exist as liquids dissolved in the oil. Under such conditions, the gas is not absorbed as a gas but as one liquid dissolved in another, and a much greater proportion of gas can be held in solution when in liquefied form than when uncondensed. It is believed that methane is never liquefied at the pressures and temperatures in oil sands penetrated by wells but is always found as gas dissolved or absorbed in the oil. It constitutes the bulk of the so-called 'dry gases'."

WHY WAS IT CALLED THAT?

SQUAWK SOCKET

"The boss sent me over for a squawk socket," announced a young man from a nearby oil lease as he entered a supply store in West Virginia.

"Squawk socket?" repeated the puzzled salesman. "None in stock, but I'll ask the manager when he comes in."

The manager grinned when he was questioned later. He knew what a squawk socket was, although it was not listed in the catalogs, and he knew that the young man had been sent to the store by a joker.

The device consisted of a piece of three-eighths-inch pipe 3 or 4 feet long and enough pliable wire to run through it double, so that a loop extended from one mouth of the pipe and the two ends of the wire from the other mouth. It was useful in the hands of drilling crews who liked chicken dinners and were not trammeled by an oversensitive conscience.

It was an easy matter to visit a neighboring henhouse at night, reach through an opening with the implement described and drop the wire loop over the head of a fat pullet. A quick jerk on the ends of the wire, and there was the bird a prisoner at the end of the pipe, held securely by the wire loop around its neck and unable to squawk an alarm.

BOOKS ON PRODUCTION

Will you please give me the titles of a few books dealing with drilling and production problems and indicate where they may be obtained?—H. D. H.

Walter H. Jeffery's new edition of "Deep Well Drilling" is recommended. It may be obtained from the author, Second National Bank Building, Toledo, Ohio, price $6. Another excellent work is "Oil Well Completion and Operation," by Prof. H. C. George, consulting engineer, U. S. Bureau of Mines, and director of the school of petroleum engineering in the University of Oklahoma. Its price is $3 and it may be obtained from the University of Oklahoma Press, Norman, Okla.

The U. S. Bureau of Mines has published many bulletins and technical papers dealing with the various problems that arise in the oil field. You can obtain a list of them by addressing the U. S. Bureau of Mines, Bartlesville, Okla., or the Superintendent of Documents, Government Printing Office, Washington, D. C.

FILLS AN IMPORTANT PIPING NEED

WELDING ELLS

made from

Reading *Puddled Iron

FOR the many jobs where genuine wrought iron pipe is advantageous—and where welding assures a better or cheaper installation than other methods of connecting pipe—Midwest now offers welding ells made from genuine Reading Puddled Iron skelp. At present, the sizes are from 2" to 10" inclusive; both standard weight and extra heavy are available.

Midwest *Genuine Wrought Iron Welding Ells—like those made from mild steel pipe material—have a number of distinctive and important advantages. Prominent among these are *dimensional accuracy* and *uniformity*—the ells have full and true circular cross sections and are to exact radius. This results from a special *compression* sizing operation that is exclusive with Midwest. The manufacturing procedure also holds the wall thickness uniform and within very close tolerances; this thickness is never less than the nominal pipe wall thickness.

The included angle of every Midwest Welding Ell is exactly 90° or 45° and center-to-face dimensions are accurately maintained—because of ingenious fixtures used in machine-beveling the ends. Inspection is very rigid and each ell is subjected to a hydrostatic test pressure 25% greater than the mill test of the corresponding pipe.

Long tangents are another distinctive advantage—the pipe and fitting can be lined up more quickly and accurately. One quarter inch of tangent is provided for each inch of fitting diameter; thus an 8-inch ell has tangents 2 inches long. Particularly in the larger sizes, an appreciable saving results from the decreased length of pipe required.

Each Midwest Welding Ell is made from *one piece* of Reading Puddled Iron skelp by a special process developed and patented by Midwest; there is one welded longitudinal seam along the inner circumference. The final working of the fitting is in *compression* at a forging heat, thus normalizing and refining the skelp and the weld—it is not extruded or stretched.

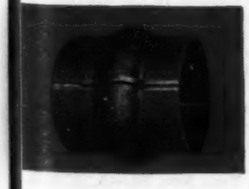
Since these Midwest Welding Ells are made from Reading Puddled Iron skelp, they have the same corrosion resistance, the same coefficient of expansion and the same welding characteristics as *genuine wrought iron pipe.

Get in touch with the nearest Midwest office for complete information regarding Midwest *Genuine Wrought Iron Welding Ells.

Midwest Piping & Supply Co., Inc.

Main Office: 1450 South Second St., St. Louis

Offices: Chicago, 208 South La Salle Street . . . Houston, 600 Bringhurst Street . . . Los Angeles, 520 Anderson Street . . . New York (Ballwood Division), 30 Church Street . . . Tulsa, 733 Mayo Building



MIDWEST WELDING SLEEVE

Used to reinforce a butt line weld between two pieces of pipe, it relieves the butt weld of any bending stress and much of the tensile stress to which it would otherwise be subjected. Transverse recess in sleeve permits its application over the conventional butt line weld. Sleeves are carried in stock from 4" to 24".

MIDWEST WELDING SADDLE

It not only reinforces the junction of neck and body of a welded header, but also compensates for the weakening of header body that results from loss of the metal cut out for the neck opening. Tests proved this saddle materially increases the strength of a welded header over customary gusset plate construction. Made in sizes from 4" x 2" to 24" x 24".

Natural Gas Industry Developments

WESTERN SERVICE LEASES O. N. G. SHAWNEE LINES

The Oklahoma Natural Gas Corp., recently rejected in a franchise election, will continue to supply Shawnee, Okla., with gas, indirectly.

Leasing of the corporation's distribution system by the Western Service Corp. of Oklahoma for a period of 25 years became known when the city commission gave the latter company permission to take over and begin operating at once the Oklahoma Natural system within the city limits. The Oklahoma Natural will furnish the gas at the city gates.

Leasing of the Shawnee gas distributing system to the Western Service Corp. is an isolated instance of economic policy and cannot be construed as an indication that the Oklahoma Natural intends to go out of direct distribution to consumers in other cities, Oklahoma Natural officials said.

The new arrangement is an alteration of the original Western Service plan, as it announced while seeking a franchise it would build its own lines in Shawnee.

The Western Service Corp. of Oklahoma, with capital stock of $101,000, was granted a charter by the secretary of state. Incorporators were T. F. Murchison, Chicago; Earl R. Ernsberger, Oklahoma City, and Hunt.

CITY PLANT DEFEATED IN NEWTON, KANS., VOTE

NEWTON, Kans., Nov. 30.—A proposal to vote $300,000 worth of bonds to build a municipal gas distributing plant was defeated by 1,167 for and 1,520 against.

The proposition of a city gas plant was put before the voters by the city commissioners after petitions requiring the calling of such an election twice had been circulated and signed.

The city commission now is expected to call a second election for the purpose of asking the citizens whether the Newton Gas Co., Cities Service subsidiary, shall be given a 20-year franchise on its promise to reduce gas rates.

The citizens previously turned down franchises to the company and the latter has been selling gas for several years without franchise. The new schedule would be, $1 for the first 1,000, 50 cents a thousand for the next 19,000 feet, and 40 cents thereafter. The present rate is $1.50 for the first 1,000, $1 for the next 2,500, and 50 cents a thousand thereafter.

EL DORADO RATE APPEAL UP TO SUPREME COURT

WASHINGTON, D. C., Nov. 30.—The United States Supreme Court has granted the application of the Western Distributing Co. for a review of what is known as the "Eldorado gas case."

The company appealed from a decision of a three-judge federal court in Kansas. In that action the Western Distributing Co. was denied an injunction against the Kansas Public Service Commission. The commission had refused an application of the company for a higher schedule of rates at Eldorado, and the company sought to establish a new schedule and enjoin interference from the commission.

The Kansas commission defended its order refusing higher rates on the ground that the gas company had refused to reveal to that body the information which would establish the reasonableness of the gate rate charge for gas and other factors making up the total paid by consumers in the form of gas bills.

Arguments on the question before the Supreme Court will be heard later.

TEXAS RATE APPEALS

AUSTIN, Tex., Nov. 30.—Appeal from an ordinance passed by Royse City reducing the gas rates of the Community Natural Gas Co. has been filed with the Texas Railroad Commission. The company is a subsidiary of the Lone Star Gas Co. The new rate was suspended pending determination of the appeal. The rate was reduced from 75 to 50 cents per 1,000 feet.

Appeal from the Haskell ordinance reducing the rate from 75 to 50 cents per 1,000 feet also was filed with the commission by the North Texas Utility Co. The Haskell rate was suspended.

Award of the contract for valuation of properties of the Lone Star Gas Co. is being withheld pending a conference with all members of the Railroad Commission present. A conference has been prevented by absence of Pat M. Neff who is holding hearings in the Panhandle.

MT. PLEASANT SERVED BY REPLACEMENT LINE

MOUNT PLEASANT, Mich., Nov. 28. Construction of the Michigan Gas Corp.'s 11-mile replacement gas mains between the Vernon gas field and Mount Pleasant has been completed and tests are being made preparatory to cutting in the new line. The change-over will not necessitate any break in service at Mount Pleasant, officials of the company said. The 4-inch main was completed in near record time. Construction on the project started October 23.

The new line will replace an old 2-inch line between the gas fields and Mount Pleasant which has been used since natural gas was turned into the local system. The old line was originally built to carry artificial gas from Mount Pleasant to Clare, but was found to be inadequate to handle the natural gas demand in Mount Pleasant.

Besides the 11-mile main the Gas Corp. of Michigan also is replacing many old city mains and connections with new. The replacements and the new line will amount to expenditures of about $75,000.

The company announced that a second gas well will be tied into the system, No. 1 Sheahan, a 2,250,000-foot well. Since natural gas was first cut in during September the company has been pulling gas from the No. 1 Scott farm well.

At the present time about 300,000 feet a day is being used in the Mount Pleasant system, which includes Clare, Rosebush, Mount Pleasant and "high line" users. This amount will be greatly increased as furnace burners are started.

WICHITA FALLS CITY PLANT

WICHITA FALLS, Tex., Nov. 30.—Plans for launching an intensive campaign to put over the election December 5 on the city's proposed municipally-owned gas plant are being made by the citizens advisory committee, Mayor Walter Nelson, Jr., and City Manager V. R. Smitham.

GAS FOR IOWA TOWN

Winterset, Iowa, is being served with gas from the main line of the Continental Construction Corp. from Amarillo to Chicago. Iowa Power & Light Co., at Des Moines, distributes the gas.

NEBRASKA EXTENSIONS

Natural Gas Distributing Co., Lincoln, Nebr., is supplying natural gas at Red Cloud, Nebr., supply coming from the line from Welch, Wyo., to Freeman, Mo. The company also expects to serve Blue Hill, Nebr., from this line.

ASK EASTLAND RATE RAISE

EASTLAND, Tex., Nov. 30.—A schedule of increased gas rates was filed by the Community Natural Gas Co. as a result of a recent federal court restraining order preventing the city from interfering with the gas company's rates. The company's petition stated it had lost $12,000 in Eastland last year and because of heavy taxes and loss of business its present rates are not adequate. The present rate is 67½ cents per 1,000 feet. The new rate is a sliding scale from $1.50 to 50 cents. The request for a permanent injunction against the city is to be heard later by the federal court.

TEXT OF DECISION ENJOINING STATE TAX

WASHINGTON, D. C., Nov. 28.—Justice Holmes delivered the opinion of the court in the case of the State Tax Commission of Mississippi and others vs. Interstate Natural Gas Co., enjoining the imposition of a state tax on interstate gas lines.

This was an appeal from a decree of three judges sitting in the District Court, by which the Tax Commission of the State of Mississippi was permanently enjoined from enforcing a privilege tax law of that state against the Interstate Natural Gas Co. The opinion follows:

The facts are agreed. The plaintiff has a trunk line of pipe extending from gas fields in Louisiana through Mississippi and back to Louisiana; 72.42 miles having a diameter of 22 inches, 8.11 miles having a diameter of 12 inches, and 4.99 miles a diameter of 10 inches. It sells daily to distributors in Louisiana about 70,000,000 feet of natural gas in summer and about 75,000,000 feet in winter. In Mississippi it sells, as will be explained, from 204,000 to 520,000 feet, according to the season. The gas flows continuously from the gas fields in Louisiana and obviously, for much the greater part at least, in interstate commerce. But the appallants rely upon business done under two similar contracts made in New York to show that there was intrastate commerce in Mississippi that may be taxed without burdening the main activity that the state cannot touch. Distributing companies tap the plaintiff's pipes near Natchez and the town of Woodville. The gas withdrawn by the distributors is measured by a thermometer and a meter furnished by the plaintiff, which is the only way in which it can be measured. The pressure of the gas is reduced by the plaintiff before it passes into the purchaser's hands. The work done by the plaintiff is done upon the flowing gas to help the delivery, and seems to us plainly to be incident to the interstate commerce between Louisiana and Mississippi. The plaintiff simply transports the gas and delivers it wholesale not otherwise worked over other than to make it ready for delivery to the independent parties that dispose of it by retail.

Decree affirmed.

INDIANA GAS STRIKE

VEVAY, Ind., Nov. 28.—A 200,000-foot gas well drilled by local investors on the James Hankins farm in Craig Township, Switzerland County, has been shut in and another well started on the Joseph Kummell farm, a half mile distant. Gas was struck at a depth of 415 feet.

MINNESOTA GAS FRANCHISE

Ellendale, Minn., has granted a natural gas franchise to the Peoples Natural Gas Co., subsidiary of Northern Natural Gas Co., Omaha, Neb.

EXPERIMENTAL RATES FOR ILLINOIS TOWNS

SPRINGFIELD, Ill., Nov. 30.—Use of natural gas in Springfield, Champaign and Urbana, at temporary reduced experimental rates, has been authorized by the Illinois Commerce Commission. In Springfield, the Illinois Power Co. will render a straight natural gas service to its customers. Domestic users will pay rates approximately 10 per cent below those now charged for artificial gas, while heating rates will be approximately 42½ per cent below present rates.

In Champaign and Urbana, the Illinois Power & Light Corp. will provide its customers with a mixture of natural and artificial gas. This new gas will be supplied to domestic consumers at rates approximately 6½ per cent lower than present rates for artificial gas, house heating rates are to be cut approximately from 30 to 40 per cent, while rates for gas for industrial purposes are to be reduced approximately 15 to 20 per cent.

The Illinois Power & Light Corp. is authorized, when the rate schedules are filed, to increase the heating value of its gas service in Champaign and Urbana from 565 to 800 B.t.u. while the Illinois Power Co. is authorized to increase heating value of its gas in Springfield from 565 to approximately 1,000 B.t.u.

Both companies are directed by the commission to adjust burners and appliances of their customers when the change in service has been made, the expense of these adjustments to be borne by the companies, and not gas consumers.

The price reductions in both cases were offered by the two distributing companies and were based on the rates the two companies are to pay the Panhandle Illinois Pipe Line Co. for natural gas. The contracts between the two distributing companies and the Panhandle company were not approved in the orders, being left for final acceptance or rejection until final orders are entered in the two cases.

Under these contracts the Illinois Power & Light Corp. is to pay the Panhandle company 40 cents per 1,000 feet of gas, while the Illinois Power Co. contract charges are based on a sliding scale.

In both orders the commission pointed out that the entire natural gas project is experimental, and as a result reserved final decision on many points, even as to whether use of natural gas may be abolished in the future, should it prove unsatisfactory.

TO SURRENDER CHARTER

CHATHAM, Ontario, Nov. 28.—Announcement has been made that the Chatham Gas Co. will make application for authority to terminate its business. The company was organized 50 years ago to supply manufactured gas to Chatham, and in 1907 engaged in the distribution of natural gas under arrangement with Volcanic Oil & Gas Co., which was later taken over by the Union Natural Gas Co. Latterly the Union company had acquired all its local distributing companies and these are gradually being wound up.

SEEKS LAREDO RATE CUT

LAREDO, Tex., Nov. 30.—A. J. Neff, an engineer employed by the city of Laredo to investigate gas rates, has recommended that a 40-cent rate be sought to replace the present gross rate of 75 cents. His recommendation embodied in a report to the city council was based on a survey of the books of the Texas Border Gas Co. and its physical properties.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas, and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

STRAIGHTRUN GASOLINE CALIFORNIA AND MID-CONTINENT

Where can I find the most detailed specifications of straightrun gasolines from different crudes, especially California straightrun gasolines and Mid-Continent straightrun gasolines?—N. S.

It is the common practice to make straightrun gasoline so that it will come within the specification for U. S. Motor gasoline but the quantity obtained varies over a very wide spread; the yield of gasoline from California petroleum, for example, ranges from approximately 2 per cent to 80 per cent. The same sort of differences in yield of gasoline is observed when refining the various oils of the Mid-Continent. The specifications for U. S. Motor gasoline have been published on this page several times, but for the purpose of this question it will do to admit that gasoline of this quality usually has an initial boiling point of about 100° F. and a final boiling point under 437° F. While color is not mentioned the commercial product is seldom darker than 25 Saybolt. Total sulphur must not exceed 0.1 per cent. The vapor pressure may vary between 8 and 12 pounds.

Analyses of two samples of petroleum, one from California and the other from the Mid-Continent will serve to illustrate the characteristics of the gasoline obtained from the two crude oils of approximately the same gravity.

	California	Mid-Continent
Gravity, A.P.I.	37°	38.7°
	Gasoline	
Gravity, A.P.I.	55.4°	57.6°
Initial, F.	110°	106°
10 per cent	203	194
20 per cent	203	194
50 per cent	271	264
70 per cent	318	318
90 per cent	386	386
Endpoint	436	431
Yield, per cent	43.3	39.7

Surveys of the crude oils of the United States are made by the United States Bureau of Mines and published in bulletins and circulars. The following is abstracted from Circular 6,114, 1929.

The average of the crude oil produced was found to have a gravity of 32.2 A.P.I., being so low because of the influence of the California production, representing over 25 per cent of the total, which averaged 24.1 A.P.I. gravity. The weighted average, on the basis of quantity produced, was 30.4° A.P.I. Calculating the percentage of straightrun gasoline in the same manner, the average yield of gasoline was found to be 23.4 per cent. This is very close to the yield of gasoline, with natural gasoline used at refineries deducted, which was 24 per cent of the crude run by the topping operation.

ALCOHOLS FOR ANTIFREEZE SOLUTIONS

We are quoted a range of prices on antifreeze solutions and would like to know what is the difference in boiling points and any other qualities of the alcohols used for this purpose.—L. A.

There are two alcohols used for lowering the freezing point of the cooling medium in automotive radiators. These are methyl and ethyl alcohols. The boiling point of pure methyl alcohol is 148° F., and that of ethyl alcohol is 173° F. There are two other antifreeze agents which are related to the alcohols; these are glycerine and ethylene glycol.

Methyl alcohol is known under several names, such as wood alcohol, methanol, and wood naphtha, but the pure substance regardless of name is the compound represented by the chemical formula CH_3OH. Reasonable purity of methanol is important, especially should the material be free from acid because of the corrosive action on the metal parts. The boiling point of methyl alcohol is lower than the boiling point of ethyl alcohol by 25 degrees and for this reason will have to be renewed more frequently than the solutions prepared with ethyl alcohol. The fumes from methyl alcohol are objectionable and poisonous if breathed in a confined place. The liquid itself is a dangerous poison even in so small a quantity as two ounces.

Ethyl alcohol, C_2H_5OH, is not permitted to be issued in the pure form for this purpose so it is marketed as denatured alcohol according to approved formulas prepared by the United States Government. The substances used for denaturing have a bad odor, very disagreeable, burning taste, and tend to cause immediate vomiting when taken internally. Like methyl alcohol, it boils at a low temperature and radiator solutions to be effective must be renewed frequently. Both of these alcohols are solvents for gums, varnishes and paints, so should not be permitted to come in contact with finished surfaces.

The U. S. Department of Public Health now requires that all preparations of methanol containing above 15 per cent shall be definitely colored purple and marked poison.

It may be of interest at this season to show the freezing points of the different concentrations of the better known antifreeze substances.

FREEZING POINTS SPECIFIC GRAVITIES ANTIFREEZE SOLUTIONS

Percentage with water	10	20	30	40	50
Denatured alcohol, °F.	+27	+19	+10	—2	—18
	0.988	0.978	0.968	0.957	0.943
Methanol	+23	+10	—2	—20	—40
	0.987	0.975	0.963	0.952	0.937
Glycerine	+29	+21	+12	0	—15
	1.029	1.057	1.085	1.112	1.140
Ethylene glycol	+26	+16	+3	—11	—31
	1.016	1.031	1.045	1.058	1.070

The specific gravities for the percentages shown are based on determinations at 60° F. by means of a good hydrometer, so when checking solutions the temperature of the solution should be at least close to this point.

DETERMINATION HYDROCARBONS IN KEROSENE AND GAS OIL

Do you have any information of any methods for the determination of hydrocarbons in kerosene and gas oil? I am interested especially in the separation into (1) unsaturated, (2) aromatic, (3) naphthenic, and (4) paraffin compounds. Have been using the method of Egloff & Morrell, Ind. Eng. Chem., April, 1926, for gasolines but this method will not apply to gas oils.—A. W. T.

The identification of the four series of hydrocarbons in gas oil was the subject of a subcommittee report of the American Gas Association, Proceedings 1930, address 420 Lexington Avenue, New York City, from which the material following has been abstracted. The committee report is to be found at page 1,189, the method of analysis is given on pages 1,197 and 1,198.

The sample is distilled in a Schott flask to a 5 per cent residue, about 340°-380° endpoint, with 10°-15° observations noted for constructing a distillation curve. This distillate is analyzed.

1. Unsaturated hydrocarbons — Fifty c.c. from the total distillate are shaken with 100 c.c. sulphuric acid (1.73), the acid layer removed after standing 2 hours, the residual oil washed with water, caustic soda, and water. The washed oil is distilled in a 100 c.c. flask. The loss in volume represents unsaturated hydrocarbons removed.

2. Aromatic hydrocarbons — Twenty c.c. unsaturated free oil is shaken with 50 c.c. sulphuric acid (1.84) and the separated oil, after 2 hours, is washed as above. Loss is aromatics. The residue (paraffins and naphthenes) is dried over night with calcium chloride before next step.

3. Naphthenes—Equal volume, 5 c.c., of filtered dry oil, from 2, and dry aniline are heated, with stirring, in a test tube jacketed with a glycerine bath to clearness. Cool slowly, stirring, to cloud point, which is aniline solution point (temperature). In order to interpret, these calculations must be made: (a) The mean boiling point of the original distillate is found from the distillation curve; this is the temperature at which half the total distillate has passed over. (b) The zero aniline solution point corresponding with any particular mean boiling point is from from the curve (illus.) where the full line shows the relationship between the boiling point of a paraffin and its aniline solution point. Expressed in another way, the zero solution point is that which would be given by an oil of similar boiling range which consisted entirely of paraffins. (c) The observed aniline point is subtracted from from the zero point, and for each 0.4° difference 1 per cent naphthene is allowed. For example, if the zero aniline point was 80° and that observed 76°, the depression of 4° shows that 10 per cent of naphthenes is present in the sample. The paraffins are obtained by difference.

A somewhat different procedure, Migill's method is given by J. E. Brewer on page 1,201.

Olefines—Here 30 c.c. sulphuric acid (1.84) are measured into a special (15 c.c. graduated neck) centrifugal bottle and cooled to 4° C., then 15 c.c. of the oil added. After mixing for one-half hour enough acid is added to bring up to mark. The bottle is then centrifuged. Loss in volume is olefines.

Aromatics—Exactly 10 c.c. of the olefine free oil, not over 3 c.c. at a time, with shaking and cooling, into 30 c.c. fuming nitric acid (1.49) which has been cooled to —10° C. After last addition of the oil the bottle, etc., are kept at —10° C. for 30 minutes. Fill the bottle almost to mark with conc. nitric acid. Centrifuge to constant volume. Loss is aromatics.

Naphthenes—Five c.c. of the last oil are placed in a 125 c.c. flask. Fifteen c.c. equal parts nitric acid (1.42) and sulphuric acid (1.84) are added and the flask floated in a beaker containing boiling water. The flask is shaken every 10 minutes for two to three hours, or until brown fumes are off. Transfer the contents to a 30 c.c. centrifuge tube, rinsing the flask with nitric-sulphuric acid. Remove the acid layer by suction. Add 10 c.c. petroleum ether to the tube, mix by blowing, cool and centrifuge. The semisolid naphthenic acids are read as naphthenes.

Paraffins—By difference.

Example: 15 c.c. original sample. Volume 12.5 c.c. after H_2SO_4 treatment. Olefine free oil 10 c.c. Volume 7.4 c.c. after fuming HNO_3 treatment. Olefine and aromatic free oil 5 c.c. Naphthenic acid 2.1 c.c.

Olefines—

$$\frac{15-12.5}{15}\times 100 = 16.7\%$$

Aromatics—

$$\frac{(10-7.4)\times 1/10 \text{ of } 12.5\times 100}{15} = 21.8\%$$

Naphthenes—

$$\frac{(12.5\div 10)\times(7.4\div 5)\times 2.1}{15}\times 100 = 25.9\%$$

Paraffins—

$$100-(16.7+21.8+25.9)=35.6$$

Consult the reference for further details.

KAURI GUM FOR SOLVENCY TEST

Where can we obtain kauri gum for the Kauri Butanol Test for solvency, how is it purchased and preserved?—W. C. F.

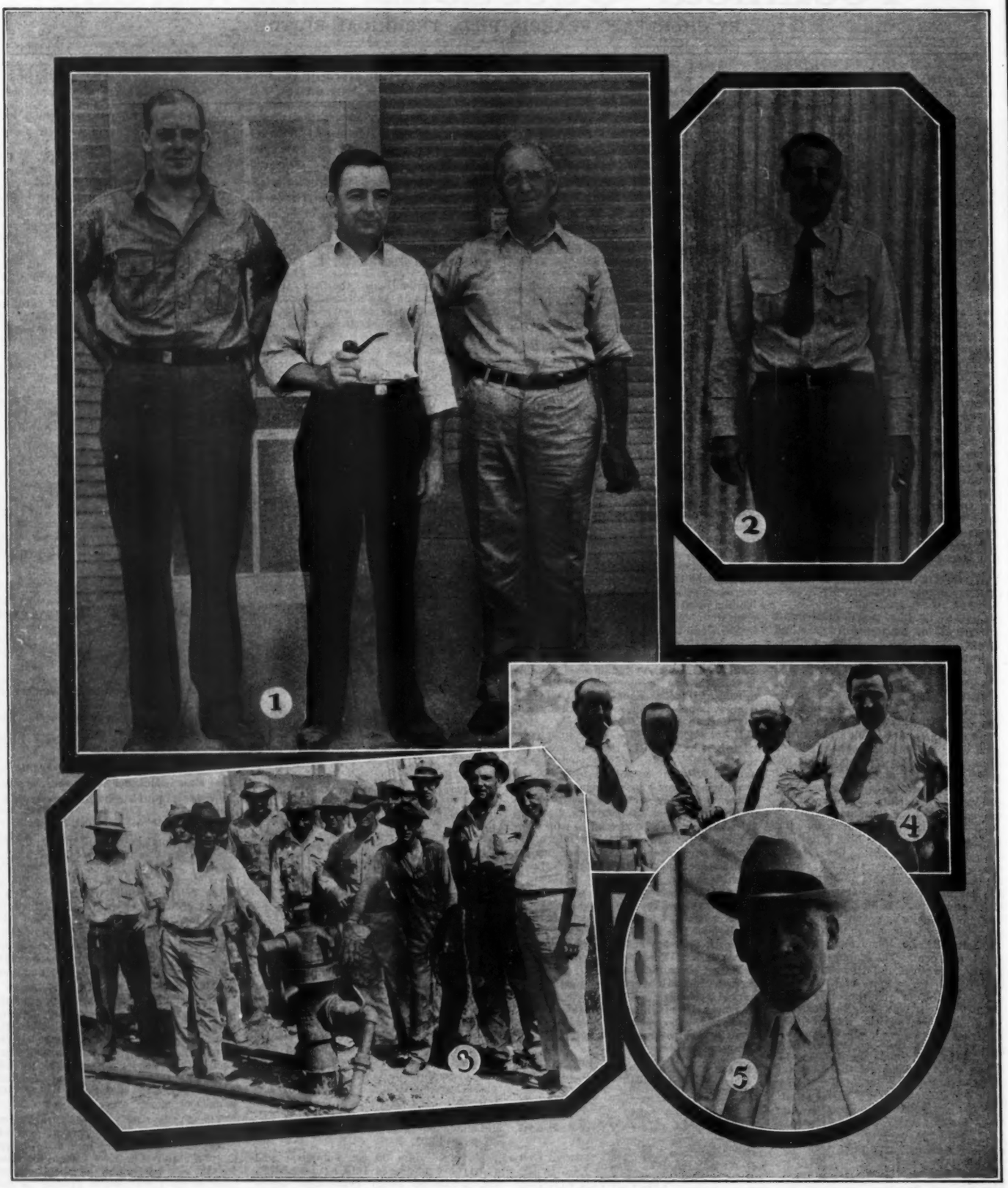
Kauri gum is a dull amber colored resin of fossil origin derived from a pine, agathis australis, which is a beautiful New Zealand tree. There is also the almost colorless gum which is collected from growing trees. Related species grow in Australia, the Fiji Islands, East Indies, Brazil and elsewhere. All of these produce a resin, known under various names, such as kauri, cowrie, dammar and copal, used chiefly in the manufacture of varnish.

Kauri gum and copal are both obtained from fossilized deposits found by digging in waste places from which the trees have long ago disappeared. The deposits are located by natives who prospect with a slender spear, thrusting this into the ground until they strike gum, often found in masses weighing 100 pounds or more.

The gum is usually graded according to color, which may vary from almost colorless through amber, brown to black. Only the purest variety should be used for making the butyl alcohol solution used in the solvency test applied to special naphthas. The directions for making this test were given on this page, issue of August 27, 1931, page 54. Kauri gum, like any resin, keeps well in a dry place.

Kauri gum of the best grade may be obtained from dealers in gum and the special firms handling chemicals and laboratory supplies.

Snapped by Representatives of The Oil and Gas Journal



1—Left to right: C. M. Ridgeway, consulting engineer, T. A. Hosey, vice president, J. P. Gillen, superintendent, Arrow Refining Co., Overton, Tex. 2—Leroy Williams, East Texas representative of Oil Country Specialties Manufacturing Co. 3—Left to right: H. King; Sam Lyons; F. C. Tilton, Gayle Johnson, Lawrence Littig, Tilton & Perot, Pierce Junction Field, Gulf Coast; J. A. Hudson, Hamil & Smith; John Gehring, R. Hamel, John White, Tilton & Perot; Frank Kinzbach, president, Kinzbach Tool Co., Houston; Fred Gertson, associated with Bryan Ward, Pierce Junction operator, and G. A. Humason, Houston, inventor. 4—Left to right: "Red" Griffiths, Houston Oil Field Material Co.; Louie Douglass, Texas Barite & Clay Co.; E. H. Bounds, Lufkin Foundary & Machine Co.; O. L. Shirley, Tulsa. 5—L. H. Gray, president, Southern Oil & Refining Co., Tyler.

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 40)

DARST CREEK—GUADALUPE COUNTY

The Texas Company's No. 7 Henry Willie, 450 ft. to W line, 150 ft. to S line of farm, J. C. Darst Sur.....T.D. 2,330 ft.; drlg.
The Texas Company's No. 4 R. A. Parrish, 450 ft. to W line, 150 ft. to N line of farm, J. C. Darst Sur. ...T.D. 2,220 ft.; drlg.
The Texas Company's No. 7 L. Anderson, 600 ft. to N and E lines of farm, J. C. Darst Sur. .....T.D. 2,115 ft.; drlg.

HENNE-WINCH-FARISS POOL—JIM HOGG COUNTY

O. W. Killam's No. 2 Lopez, 150 ft. to E line, 330 ft. to N line of Sur. 255 .....T.D. 1,500 ft.; drlg.

CARTWRIGHT POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 14 Cartwright, 1,000 ft. W of No. 23 Cartwright .....T.D. 5,400 ft; standing.

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities' No. 8 Chittim, 24 ft. S of No. 7 Chittim .....T.D. 4,850 ft.; no report.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Sagarin.....T.D. 4,750 ft.; drlg.
Gulf Coast Oil Co.'s No. 1 Elder, NW of same company's No. 1 Harrell .....T.D. 5,000 ft.; drlg.
Houston Oil Co.'s No. 1-A T. M. Harrell, 330 ft. to N and E lines of tract in H. B. Sheppard Sur. .....Location.
Neal-Milton and Kepley Pet. Co.'s No. 1 J. N. Roark, 200 ft. to S line, 200 ft. to E line of 106-ac. tr. .....T.D. 4,850 ft.; bailing.

Saxet Oil Co.'s No. 3 Donigan, north offset to Zoch's No. 1 Baldwin .....Location.
Saxet Oil Co.'s No. 5 Weil, 3,041 ft. to N line, 333 ft. to W line .....Set surface csg.

WELDER FIELD—SAN PATRICIO COUNTY

Atlantic Oil Prod. Co.'s No. 1 Welder, 500 ft. to N and W lines, Blk. 3, F. R. Portillo Sur. .....T.D. 4,300 ft.; drlg.

WHITE POINT POOL—SAN PATRICIO COUNTY

Saxet Oil Co.'s No. 18 Rachel .....T.D. 1,425 ft.; drlg.

LOS OLMOS POOL—STARR COUNTY

Hooks & Weaver's No. 3 Kelsey-Bass, 1,050 ft. to W line, 1,800 ft. to S line, Blk. 2, Sub. of Porciones 75, 76, 77, Jurisdiction of Camargo, Sur. No. 6 .....T.D. 515 ft.; waiting on cement.
Jenkins & Powers' No. 1 Kelsey-Bass, Porcion 75.....T.D. 210 ft.; drlg.
Los Olmos Oil & Gas Co.'s No. 6 Kelsey-Bass, 150 ft. to W and S lines of north half of Blk. 5, Porciones 75, 76, 77, Jurisdiction of Camargo, Sur. No. 6 .....T.D. 465 ft.; S.D.
Los Olmos Oil & Gas Co.'s No. 7 Kelsey-Bass, three-fourths mile NE or No. 6 .....T.D. 500 ft.; abnd.
L. L. Smith No. 1 Kelsey-Bass, Blk. 8 sub. Porciones 75, 76, 77, Jurisdiction of Camargo .....Dropped.
Rio Oil & Ref. Co.'s No. 1 Kelsey-Bass (formerly carried as Los Olmos O. & G. Co.'s No. 1 Kelsey-Bass)...T.D. 878 ft.; changing to heavy rig to deepen.
Rio Oil & Ref. Co.'s No. 2 Kelsey-Bass, W offset to Hooks & Weaver No. 1 .....T.D. 135 ft.; drlg.
San Marcos Oil Co.'s No. 2 J. F. Ivey, 1,800 ft. to N line, 300 ft. to E line, Share 8, Sub. W two-thirds of Porcion 75, Jurisdiction of Camargo .....T.D. 218 ft.; comp. 185,000 ft. gas.
San Marcos Oil Co.'s No. 3 Ivey, 450 ft. W of No. 2.... T.D. 423 ft.; drlg.

CAROLINA-TEXAS POOL—WEBB COUNTY

Carolina-Texas O. & G. Co.'s No. 10 Barnsley, 150 ft. to E line, 200 ft. to S line of Blk. 14, Sur. 268.....Derrick.
Usher Carson's No. 5 Webster, 150 ft. to N and W lines of NW quarter of SE quarter of Sur. No. 684.....T.D. 3,050 ft.; flowing 125 bbls.

COLE POOL—WEBB COUNTY

O. W. Killam's No. 22 Bruni, 1,755 ft. to SW line, 186 ft. to NW line, Sec. 9 .....T.D. 2,683 ft.; drlg.

ESCOBAS POOL—ZAPATA COUNTY

Claggett et al's No. 1 Cuellar, Blk. 6, Sur. 61 .....Rigging up.
Pray & Chamberlain's No. 4 Garza, Blk. 1, Comitas grant. Derrick.
E. K. Bateman's No. 1 M. Garza, in Comitas grant, 200 ft. to NW line, 660 ft. to NE line of Blk. 29 ..T.D. 1,511 ft.; shut down.
F. H. Etheridge's No. 2 Bustamente, Share 35, Comitas grant .....Location.
Grayburg Oil Co.'s No. 1 F. G. Martinez, 150 ft. from S and W lines of 240-ac. tract in E½ of Sur. 4.. ...1,600 ft.; drlg.
Newton, Owens & Evans' No. 1 Garza, 200 ft. to N and W line Block 4, Share 1, Sur. 161 ... .T. D. 150 ft.; drlg.
O. W. Killam's No. 10 A. Bustamente, 150 ft. to SE line, 200 ft. to NE line, Blk. 11, Share 5, Fansler Sub., Comitas grant .....T.D. 1,000 ft.; drlg.
Pray & Chamberlain's No. 4 Garza, Block 1, Comitas grant .....Derrick.
Shankle & Murray's No. 2 Cuellar, 490 ft. W line, 150 ft. to N line, Blk. 5, Sur. No. 61 .....Spudded in.
S.R.C. Oil Co.'s No. 5-E Trevino .....Rigging up.
Trevino Oil Corp.'s No. 13-B Trevino, Sur. 412 .....Location.
Winch & Billings' No. 3 Bustamente, Share 35, Comitas grant .....T. D. 1,473 ft.; comp. 200 bbls.

KILLAM-CUELLAR POOL—ZAPATA COUNTY

O. W. Killam's No. 46-B Cuellar, 680 ft. to SW line, 4,100 ft. to E line, Sur. No. 277 .....Spudded in.
O. W. Killam's No. 47-B Cuellar, Sur. 277 .....Location.

CHARCO REDONDO POOL—ZAPATA COUNTY

Bob & Richey's No. 25 Martinez, 1,300 ft. from NE line, 1,090 ft. from SE line, Block 24, Dukes sub. Charco Redondo grant .....T.D. 180 ft.; comp. 2 bbls.
Bob & Richey's No. 26 Martinez, 1,460 ft. to NE line 855 ft. to SE line, Blk. 24, Duke sub. Charco Redondo grant .....Location.
Bob & Richey's No. 27 Martinez, 870 ft. to SE line, 150 ft. to NE line, Block 24, Duke sub. Charco Redondo grant .....Location.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 40)

Ingersoll-Miller's No. 2 Carruth, 3,900 ft. S, 2,500 ft. W of NE cor. of tr. in Francisco Bolen Sur. .....T.D. 480 ft.
Dr. Ewell Neil's No. 1 J. Watson, 500 ft. from W line, 1,700 ft. from S line of B. Martinez Sur. .....T.D. 2,250 ft.; drlg. chalk.
Schneider, Rees et al's No. 2 Claussen, 12 miles NE of San Antonio .....T.D. 1,150 ft.; S.D.
Tri-State Oil Co.'s No. 1 E. B. Carruth, 2,500 ft. from S line, 2,560 ft. from E line of tr. in F. Bolen Sur. ...T.D. 770 ft.
S. W. Blount's No. 1 S. A. Land Co., I. Perez Sur., 1,800 ft. to N line, 450 ft. to W line of tract.....T.D. 500 ft.; S.D.
Van Duyn et al's No. 1 Bradden, 5,000 ft. N of Medina River, 350 ft. to E line of tract, 3 miles W of San Antonio .....T. D. 650 ft.; drlg.

CALDWELL COUNTY

Lloyd North's No. 1 Keith McGee (previously carried as Ralph R. Lewis), 600 ft. from E and S lines of tr. in J. Pinchback Sur. .....T.D. 2,000 ft.; drlg.
M. O. Rayor's No. 3 N. L. Dunlop, 350 ft. to NW line, 150 ft. to NE line of farm, Solomon Seal Sur. ....T.D. 2,340 ft.; drlg.

DEWITT COUNTY

Gibson & Sturm's No. 1 Clark, Dolores Alderete Sur. ....Rigged up; standing.

DUVAL COUNTY

Thomas & Tarver, Inc.'s No. 1 Wood-Welder, 500 ft. to N line, 4,320 ft. to W line of Sur. No. 102 .....T.D. 2,156 ft.; drlg. plugs.
S. J. Carpenter et al's No. 1 Juan Benavides, Blk. 35, Mesquite grant .....T.D. 1,712 ft.; temp. abnd.

FALLS COUNTY

Vassar & Carruth's No. 1 Farias, 890 ft. to N line, 190 ft. to W line of farm in Manchaca Sur. .....Location.

FRIO COUNTY

A. H. Wray's No. 1 Roche, 330 ft. from N and W lines of NW SE, Sec. 123, A. Hutzler Sur. .....T.D. 3,180 ft.; standing.

GUADALUPE COUNTY

Pray & Campbell's No. 1 Kruger, 150 ft. to E line and 150 ft. S of Guadalupe River .....T.D. 2,538 ft.; tested sulphur water; abnd. in Edwards
Barnhill et al's No. 1 H. L. Hoffman, 450 ft. to N and W lines of farm, in John G. King Sur. .....T.D. 800 ft.; drlg.
Harry Bruner's No. 2 Jim Sherrill, 330 ft. from NW and SW lines of tr. in Geo. Allen League ..... T.D. 180 ft; standing.
Schleyer, Atherton and Armstrong's No. 1 Ogletree, Robert Smith Sur. .....T.D. 1,745 ft.; abnd.
M. W. Eiser's No. 1 Wells, 2,790 ft. to W line, 150 ft. to S line of farm in Jose de la Baume Sur. .....Rigging up.
J. M. Scott's No. 1 E. Drumm, 250 ft. to W line, 150 ft. to S line of tract, C. Campbell Sur. .....T.D. 450 ft.; drlg.

GOLIAD COUNTY

Plymouth Oil Co.'s No. 1 Parks, 5 miles NE Goliad.....T.D. 3,700 ft.; S.D.
Neal et al's No. 1 J. M. Pettus, 10,700 ft. to S line, 2,500 ft. to E line of Pedro Trevino Sur. .....T.D. 480 ft.; drlg.

JIM WELLS COUNTY

Stanolind O. & G. Co.'s No. 1 N. A. Hoffman, 6,800 ft. from S line, 10,000 ft. from W line of most easterly NE cor. of 7,000-ac. ranch in La Trinidad Sur. ....T.D. 6,464 ft.; drlg.
Vacuum Oil Co.'s No. 1 Seeligson .....Location.

KENDALL COUNTY

Borgett et al's No. 1 W. Haag, 3,804 ft. from N line, 1,506 ft. from W line of W. Avery Sur. .....T.D. 1,345 ft; S.D.
Dixon Oil Co.'s No. 1 Ottmar Behr, 323 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale .....T.D. 2,708 ft; standing.
Sitton et al's No. 1 Garvin, C of NE of D. L. Richardson Sur. in the D. L. Richardson Sur., 1 mile NE from Kendalia .....T.D. 1,482 ft; S.D.
Fred S. Dibble's No. 1 Ellebrach, Sur. 77, N part of county .....T.D. 50 ft; S.D.

KERR COUNTY

Evans & Gant's No. 1 E. Young, A. E. Burge Sur. No. 28..T.D. 1,812 ft; standing.
Evans & Gant's No. 2 Love, 150 ft. S and W line of Sur. 1,593 .....T.D. 4,018 ft.; drlg.

KARNES COUNTY

V. F. Neuhaus' No. 1 Russell, 150 ft. to E line, 150 ft. N of Highway, in Carlos Martinez Sur. .....T.D. 2,978 ft.; abnd., dry.

LA SALLE COUNTY

Buckley Ranch O. & G. Co.'s No. 1 Buckley, 200 ft. from S line, 330 ft. from W line of Sur. No. 37 .....T.D. 4,503 ft.; to deepen.

LIVE OAK COUNTY

J. A. Harper's No. 1 fee, 2,130 ft. to N line, 510 ft. to E line of farm, J. Pointevant Sur. No. 37 .....Derrick up; moving in machinery.
Henderson Coquat's No. 1 Hewitt ....T.D. 400 ft; standing.
V. G. Schimmel's No. 1 Terrell in Mark Killely Sur. .....950 ft.; drlg.
Phillips Petroleum and Henderson Coquat's No. 1 Sanger, 150 ft. to most S of N lines, 2,000 ft. to W line of tract .....T.D. 1,450 ft.; drlg.

LEE COUNTY

Henderson & Holden's No. 1 Dismuke, 600 ft. to E line, 150 ft. to N line of farm, J. Maximilian Sur. .....Rigging up.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. .....T.D. 3,890 ft.; shut down.
C. B. Polk et al's No. 1 Stoltz, Hiram Donohue Sur. ....T.D. 2,300 ft; S.D.
Chadwick et al's No. 1 Hickey, 1,000 ft to NW line, 300 ft. to NE line of farm in Warrelman Sur. .....T. D. 20 ft.; spudded in.

MAVERICK COUNTY

I. N. Boicourt's No. 1 Bandera, School Land .....T.D. 2,284 ft; standing.

McMULLEN COUNTY

Jacob, Buzzini & Pickett's No. 1 Jacob in NE part of county .....T.D. 500 ft.; drlg.

MEDINA COUNTY

Frank A. Brown's No. 1 Fohn, 150 ft. from E line, 790 ft. from N line of J. F. Torry Sur. No. 113.....T.D. 922 ft; twisted off drill stem, fishing.
Genard Bros.' No. 1 L. Crawford, 150 ft. to N and W lines of tr. in J. Keppler Sur. No. 478 .....T.D. 2,240 ft.; S.D.
J. H. Hickey's No. 1 Jungman at N end Chicon Lake ...T.D. 650 ft; S.D.
Star Pet. Co.'s No. 1 Medina Valley Irrigation Co., 150 ft. from S and E lines of Isom Palmer Sur. No. 20...T.D. 825 ft; S.D.
C. J. Webster Oil & Gas Co.'s No. 1 Adams, 2,450 ft. to N line, 160 ft. to E line of Jos. Hillemeyer's No. 25..T.D. 720 ft.; drlg.

MILAM COUNTY

Dil-Tex Oil Corp.'s No. 1 E. Lawson, 560 ft. from NE and 270 ft. from SE lines of farm in Fernando Rodriguez Sur., near Cause .....T. D. 2,550 ft.; standing.
H. W. Elliott's No. 1 Marek, 767 ft. from N line, 500 ft. from W line of 160-ac. tr. in B. Wickson Sur. .....T.D. 1,456 ft.; S.D.
Nowlen's No. 1 Beard, 1,350 ft. from SE line, 450 ft. from SW line of farm, in J. F. Guthrie Sur., 4 miles S Thorndale .....T.D. 2,036 ft; S.D.
Red Bank Oil Co.'s No. 2-A J. A. Foster, 5,243 ft. to SW line, 150 ft. to NW line of farm .....T.D. 1,260 ft.; drlg.

NUECES COUNTY

Southern Crude Oil Pur. Co.'s No. 1 Chas. E. Stratton, 1,650 ft. E line, 330 ft. S line of P. Sancho Sur. ....T.D. 4,788 ft.; testing.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW. Sec. 175 .....T.D. 2,530 ft; S.D.

STARR COUNTY

R. B. Suttle's No. 1 Guerra, 2,000 ft. to N line, 270 ft. to W line of Porcion 110 .....T. D. 430 ft.; drlg.
Jess Williams' No. 1 Welsh, 1,120 ft. to W line, 1,500 ft. to N line of tract in Pedernal grant .....Location.
Jess Williams' No. 1 Welsh, 1,120 ft. to W line, 1,500 ft. to N line of tract, Pedernal grant .....Location.

TRAVIS COUNTY

C. R. Franklin et al's No. 1 J. Wilson, 160 ft. from N and W lines of farm in A. Alexander Sur. .....T.D. 1,180 ft.; drlg.
Fuchs et al's No. 1 Shiffler, 1,000 ft. to N line, 160 ft. to E line of farm, A. C. Caldwell Sur. .. ..T. D. 515 ft.; drlg.
Ray & Henze's No. 1 Hatech, in C of tr. in S. Hamilton Sur. .....T.D. 540 ft.; drlg.
Waldron et al's No. 1 T. Cook, 900 ft. from NW line, 3,500 ft. from SW line of D. H. Minor Sur. .....T.D. 1,420 ft.; drlg.

WEBB COUNTY

O. W. Killam's No. 2 Reiser, 1,210 ft. to W line, 150 ft. to N line, Sur. No. 1,618 .....T.D. 3,730 ft.; drlg.
O. W. Killam's No. 1 Bruni, 1,667 ft. to N line, 805 ft. to W line of Sur. No. 445 .....Rigged up.
Power & Dettenhaim's No. 1 Cowan & Goss, 1,870 ft. from W line, 1,656 ft. from N line of Sur. No. 1,606..T.D. 150 ft.; no report.
Cole Pet. Co.'s No. 4 Benavides, 2,480 ft. to E line, 160 ft. to S line of Sur. No. 1,613 .....T.D. 4,050 ft; S.D.
Fansler, Johnson & Peacock's No. 1 Laurel, 425 ft. to N line, 600 ft. to E line of Blk. 10, Sur. 271 ..... T.D. 100 ft.; drlg.

WILLIAMSON COUNTY

Burns et al's No. 1 Wilder, 1,300 ft. to N line, 200 ft. to W line of tr. in H. Owens Sur. .....T.D. 1,480 ft.; drlg.
Hays & Gee's No. 1 E. G. Johnson, 1,800 ft. from N line, 170 ft. from E line of tr. in B. C. Low Sur., S of Georgetown .....T.D. 1,595 ft.; S.D.
McLean's No. 1 R. C. Miller, 300 ft. from S line, 150 ft. from W line of farm in Manlove Sur. ..... T. D. 1,700 ft.; shut down.
S. S. Wilson's No. 1 Speckles, 150 ft. N of road, 600 ft. from W line of farm in J. Jordan Sur., 1 mile N of Coupland .....T.D. 1,450 ft.; S.D.

WILSON COUNTY

A. M. Blume's No. 1 Nickolson, C. Diaz Sur. .....T. D. 1,600 ft.; shut down

ZAPATA COUNTY

Ballard & Mercer's No. 1 Flores, 500 ft. from NE line, 580 ft. from SE line of Blk. 37, Porcion 37 ..... T.D. 510 ft.; drlg.
F. H. Etheridge's No. 1 Henne-Winch, in Sur. No. 286.. T.D. 1,900 ft; drlg.
T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 3 Subd., Share 7, Porcion No. 6, T. Uribe Partition of Jose V. Borrego Sur. ..... Rigged up and standing.
Bill Henry et al's No. 1 Gopher Trust estate, Borrego grant ..... T.D. 1,525 ft; standing.
J. M. Gier's No. 1 Garza Estate, 150 ft. to NW and SW lines, Blk. 18, C. A. Douglas Sub., M. Garza land in Comitas grant ..... T.D. 200 ft.; drlg.
Lowe, Rogers et al's No. 3 Prudencia Benavides, 510 ft. to S line, 450 ft. to W line of Blk. 16, Sur. No. 11.. Rigging up.
National Oil Co.'s No. 1 Zapata Trust estate, 617 ft. NW line, 96 ft. NE line, Blk. 97, De Prom Subd., Porcion 6 ..... T.D. 600 ft; standing.
National Oil Co.'s No. 3 Adams, 150 ft. from NW line and SW line, Blk. 11, Borrego grant ..... T.D. 1,320 ft; stand'ng.
Winch & Billings' No. 2 Bustamente, 862 ft. to NE line, 150 ft. to SE line of Share 31, Pal-Mar tract, Share 36, Fansler Sub., Comitas grant ..... T.D. 1,473 ft.; comp. 350 bbls.
United Prod. Co.'s No. 10 Measles, 1,000 ft. to NE line, 1,550 ft to SE line of Sur. No. 207 ..... T.D. 1,000 ft.; drlg.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 38)

NATCHITOCHES PARISH

Dr. H. S. Gerson, No. 1 Smith, Sec. 11-10-8, 2,000 ft. N of NE cor of irregular Sec. 10 in Sec. 11 ..... S.D. 50 ft.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10 .. S.D. 1,518 ft.
R. A. Keaton's No. 1 Stephens, Sec. 25-10-6, 320 ft. N and W, SE cor. NW NW ..... S.D. 178 ft.
Mid-West Prod. Co., Inc.'s No. 1 H. Brown, Sec. 34-11-10, 200 ft. W, 230 ft. S, NE cor. SE ..... Drlg. 1,175 ft.
C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10 ..... S.D. 1,380 ft.

OUACHITA PARISH

Wilson & Mitchell's No. 1 Williams, Sec. 5-16-1e, 330 ft. E, 240 ft. S, NW cor. SW SE ..... Drlg. 800 ft.

RED RIVER PARISH

La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-13-11..... Spudded in; S.D. 50 ft.
Mack Jourden Co.'s No. 1 Lockett, 4,025 ft. S, 1,080 ft. E, NW cor. SW, Sec. 29, in Sec. 32-13-10 ..... W.O.S.R. 2,750 ft.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5 ..... Derrick.
National Gas Co.'s No. 1 Singletary, 1,980 ft. N, 660 ft. W, SE cor., Sec. 20-18n-7e ..... S.D. 2,515 ft.
Southern Carbon Co.'s No. 1-B C. M. Noble, 2,966 ft. N, 1,525 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6.. Location.

SABINE PARISH

W. M. Coates' No. 1 Stille, 330 ft. N, 660 ft. W, SE cor., Sec. 35-8-13 ..... Derrick.
Davidson & Grigsby's No. 1 Martinez, Sec. 2-7-13, 330 ft. S and W, NE cor. NW SE ..... Rigging up.
Deene et al's No. 1 Ezernack, Sec. 2-7-13, 1,070 ft. S 250 ft. W NE cor. ..... Location.
Exchange Pet. Co.'s No. 1-B Louisiana Long Leaf Lbr. Co., Sec. 35-8-11, 300 ft. N and E, SW cor. NE NW.. Drlg. 1,602 ft.
R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 430 ft. S, 300 ft. W, NE cor. NW NW, Sec. 10-8-13 ..... Drlg. lime 3,869 ft.
Gehrig Oil Co.'s No. 1 Skinner, Sec. 16-8-11, 615 ft. E, 565 ft. S, NW cor. NW ..... Drlg. 600 ft.
T. M. LeGrand's No. 1 Peterson, 330 ft. N and E of C, Sec. 34-7-13 ..... Arranging to set 6-in. 2,243 ft.
J. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-9-13 ... S.D. 2,039 ft.
A. H. Thames' No. 1 Edward est., 150 ft. NW SE cor. NE SE, Sec. 8-8-13 ..... S.D. 1,200 ft.

TENSAS PARISH

U. A. Duvall et al's No. 1 Martin Jacob, 150 ft. S, 150 ft. W, NE cor., Sec. 1-14-11e ..... S.D. 3,060 ft.
A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... S.D. 3,545 ft.

ARKANSAS

COLUMBIA COUNTY

Kendall Oil Co.'s No. 1 Fullenweider, Rhea & Kitchen, Sec. 13-17-22 ..... S.D; W.O. 814 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C, NW SE, Sec. 4-20-3 ..... Reaming 1,350 ft.

CLEVELAND COUNTY

Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12w .... Rigged up and S.D.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... Reaming 2,050 ft.; T.D. 3,740 ft.

CRAWFORD COUNTY

Ozark Nat. Gas Co.'s No. 1 Hammond, C SE SE, Sec. 29-10-29 ..... Drlg. 2,550 ft.

DALLAS COUNTY

E. C. Brewer's No. 1 W. E. Hillman, 330 ft. E, 40 ft. S, NW cor. SE NE, Sec. 20-10-13 ..... S.D.; W.O. 2,869 ft.
J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. NE, Sec. 11-9-15 ..... S.D. funds 2,520 ft.
Zepp O. & G. Co.'s No. 3 Hillman, Sec. 20-10-13, 180 ft. N, 450 ft. E, SW cor. NW NE ..... Location.

DREW COUNTY

Co-Operative Devlopment Co.'s No. 1 Ogles, Sec. 35-15-5, 330 ft. S and E, NW cor. NE NW ..... Resetting 10-in. csg.; T.D. 1,250 ft.

HOT SPRINGS COUNTY

Star Oil Co.'s No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 ..... S.D. 1,300 ft.

LINCOLN COUNTY

Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 200 ft. W, NE cor. NE SW, Sec. 5-8-7 ..... S.D. 2,800 ft.

OUACHITA COUNTY

Wilson & Chapman's No. 1 Lambert, Sec. 10-15-16, 600 ft. S, 150 ft. E, NW cor. SE SE ..... Drlg. 50 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-19 ..... Location.
Stephens et al's No. 1 Dierke Lbr. Co., Sec. 29-12s-31w, 150 ft. S, 330 ft. E, NW cor. NE NW ..... Rigging up.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D.; W.O. 2,570 ft.

MILLER COUNTY

W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-20-27 ..... S.D. 1,955 ft.

OUACHITA COUNTY

Copenhaven et al's No. 2 Berg, C SE SE, Sec. 13-15-17.. S.D. for fuel 2,011 ft.
M. S. M. Oil Co.'s No. 4 Arnold & Doyle, Sec. 23-16-15, 200 ft. S and E, NW cor. SW SE ..... Drlg. plug 2,096 ft.

PIKE COUNTY

E. R. Henderson's No. 1, Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14 ..... T.A. 2,909 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24 ..... S.D.; W.O. 1,020 ft.
E. R. Henderson's No. 1 W. B. East, 200 ft. S, 150 ft. W, NE cor., Sec. 13-9-23 ..... S.D. 338 ft.

PRAIRIE COUNTY

Powell Creek O. & G. Co.'s No. 1 Kloss, NE SW, Sec. 3-4n-6w ..... Partly rigged up and S.D.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... S.D.; T.D. 1,436 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-2n-29 ..... S.D.; waiting on csg. 1,860 ft.

SEVIER COUNTY

Tristate Oil Co.'s No. 1 McCown, Sec. 34-8-32, 8½ SW ... Rigging up.

UNION COUNTY

Drillers Oil & Dev. Co.'s No. 1 Pickering, 220 ft. N, 668 ft. E, SW cor. NW NE, Sec. 1-17-16 ..... Plugging hole 2,134 ft.
H. H. Heims' No. 1 C. H. Murphy, NE cor. NW NE, Sec. 31-16-14 ..... Rigging up.
Joe Modisette et al's No. 1 W. D. Webb, Sec. 6-18-13, NE cor. NW SE ..... Dry and abnd. 3,625 ft.
Sunby et al's No. 2 Perdue, Sec. 33-16-14, 75 ft. S. 150 ft. E, NW cor. Sec. ..... W.O. 3,247 ft.

WASHINGTON COUNTY
(Cable tools)

C. H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... S.D. for funds 1,795 ft.

YELL COUNTY
(Cable tools)

Tegmeir & Luckett's No. 1 Falcon, Sec. 36-7-21 ..... S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Hindeman & Bell's No. 1 Merritt (was Maud-Redwater Oil Co.'s), 175 ft. N, 175 ft. E, SE cor. G. W. Hardidge 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur. ..... Drlg. 3,442 ft.
Logan & Elliott's No. 1 Smith, 9,600 ft. S, 2,500 ft. W, NE cor. Chas. Lewis Sur. ..... S.D. 4,505 ft.
Tarkington & Jones' No. 1 W. W. Whybark, 200 ft. S, 200 ft. W, SW cor. J. H. Dyer Sur. ..... S.D. 1,880 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... S.D. 3,000 ft.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr. in J. H. Murphy Sur. ..... S.D. 3,600 ft.

CASS COUNTY

J. F. Morrisey's No. 1 T. J. Wilson, 1,088 ft. S of N line, 2,376 ft. E of W line of H.R.S., J. R. McFarland Sur. ..... S.D. 3,670 ft.
Davis & Pigg's No. 1 Roy Bryan, SW cor. Roy Bryan 88-ac. tr., Albert H. Latimer Sur. ..... S.D. 2,055 ft.
Everets Drlg. Co.'s No. 1 H. W. Whittington, 200 ft. S and W, NE cor. 69-ac. Whittington tr., L. Strong Sur. ..... S.D. 3,922 ft.
Geo. McKamie's No. 1 R. E. Hall, 150 ft. N, 150 ft. W, SE cor. Hall's 117-ac. tr., H. Buckler Sur. ..... S.D. 4,195 ft.
C. E. Murdock's No. 1 First National Bank, Evans Watson Sur. ..... S.D. 4,390 ft.
John C. Rogers' No. 1 I. E. Lanier, 575 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. .... S.D. 2,280 ft.
Olds & King's No. 2 Anthony, John C. Byers Sur. ..... S.D. 1,750 ft.
John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur. ..... S.D. 955 ft.

HARRISON COUNTY

Lloyd Oil Corp.'s No. 1 E. S. Timmons, 150 ft. from N line to 250 ft. from E line of 105-ac. tr., Findley Sur. ..... Reaming 4,025 ft.
Ryan Consolidated Pet. Corp.'s No. 1 J. M. Fuhr, 1,-300 ft. N of NW cor. T. J. Copelin Sur., 1,675 ft. SW at right angles to NW SE line of O'Neal Sur.... Derrick.

MARION COUNTY

Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur. ..... S.D. 2,380 ft.

PANOLA COUNTY

Hoffer et al's No. 1 Cameron Lbr. Co., center 1,306-ac. tr. in W. M. A. LaGrove Sur. ..... Derrick.
Moses & Wallace's No. 1 Daniel, 600 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur.... Spudded and S.D.
G. A. Davidson's No. 1 Latham, Wm. Rich Sur. ..... S.D. 1,882 ft.
J. L. Nelson et al's No. 1 J. W. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in Jas. Hanks Sur. ..... S.D. 2,250 ft.
United Gas Public Service Co.'s No. 11 Werner, 1,162 ft. N, 2,418 ft. W, SE cor. D. B. Lewis Sur. ..... Drlg. 5,033 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. .... S.D. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. .... S.D. 2,280 ft.

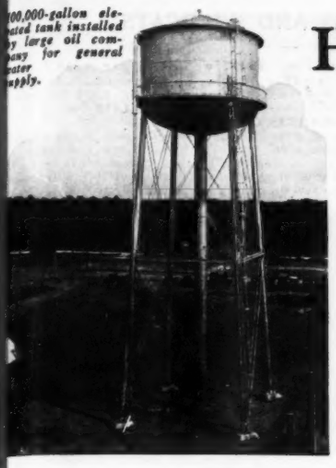
SHELBY COUNTY

E. L. Chapman's No. 1 Pickering Lbr. Co., C. E. Henry (headright) ..... Est. 10,000,000 ft. gas 3,864 ft.
Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur. .... Arrng. resume drlg. 3,127 ft.
Harry Elliott's No. 1 Pickering Lbr. Co., 1,000 ft. N, 150 ft. E, SW cor. 361-ac. tr., G. H. Patterson Sur.... Set 10-in. 108 ft.
K. H. Francis' No. 1 John Mims, Mary Smith Sur. ..... Set 6⅝-in. 2,817 ft.
H. H. Gracey's No. 1 J. A. Morrison, 1,500 ft. N, 200 ft. E, SW cor. J. A. Morris' 109-ac. tr., Wm. English Sur. ..... S.D. 2,600 ft.
Henry Mauilding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 80-ac. tr., A. D. Fountain Sur. ..... S.D. 3,246 ft.
McRoby et al's No. 1 Windham, Wm. Leach Sur., on Windham 296-ac. tr. ..... Arrang. to set 6-in. 3,360 ft.
Ridgeway et al's No. 1 Polley, Domingo Gonzales Sur., 3,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-ac. tr. ..... Arrng. to set 8-in. 822 ft.
C. H. Tautenhahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E, NW cor. J. C. Bogard's 52-ac. tr., Thomas Baker Sur. ..... S.D. 20 ft.
Tenant et al's No. 1 J. Henry, C. Z. Walker Sur. ..... S.D. 3,457 ft.
United North & South Prod. Co.'s No. 1 Windham, 800 ft. W, 1,050 ft. N, SE cor. of Windham 171.5-ac. tr. on A. H. English Sur. ..... S.D. W. O. 3,391 ft.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 38)

W. F. Lacy's No. 1 Holliday, Sec. 35-8-12, 330 ft. N and E, SW cor. SE NW ..... Drlg. 910 ft.
Ohio Oil Co.'s No. 13 Bowman-Hicks, Sec. 35-8-12, 2,310 ft. N, 525 ft. W, SE cor. Sec. ..... Drlg. 1,750 ft.
Pelican Nat. Gas Co.'s No. 11 Louisiana Long Leaf Lbr. Co., Sec. 10-7-11, 330 ft. N and W, SE cor. NE NW.... 6-in. 2,335 ft.
Pelican Natural Gas Co.'s No. 12 Louisiana Long Leaf Lbr. Co., Sec. 4-7-11, 330 ft. N and W of SE cor. Sec.. Rigging up.
Smith et al's No. 1 Hale, Sec. 1-7-13, 330 ft. S and W, NE cor. NW SE ..... Drlg. 1,700 ft.
A. F. Tarver's No. 2 Cutrer, Sec. 12-7-11, 330 ft. S and W, NE cor. NW NW ..... 6⅝-in. 2,378 ft.
O. J. Baird's No. 1 Duggan, Sec. 14-7-11, 328 ft. S, 648 ft. E, from center of Sec. ..... S.D. for water 2,000 ft.
Roy Baker's No. 1 Sabine Lbr. Co., Sec. 1-7-12 ..... W.O.S.R. 2,548 ft.
W. M. Coates' No. 1 Bowman-Hicks, 330 ft. S and W, of C, Sec. 2-7-12 ..... W.O.S.R. 2,441 ft.
O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-13 ..... S.D.; W.O. 2,532 ft.
Hawkins & Antoon's No. 1 Newton, Sec. 1-7-11 ..... W.O.S.R. 2,609 ft.
Hudson & Bird's No. 1 Walden, 480 ft. N, 300 ft. E, SW cor. SW NE, Sec. 26-8-11 ..... S.D. 1,800 ft.
M. J. Kissick's No. 1 Brown Lbr. Co., Sec. 1-7-11, 1,-070 ft. S, 1,225 ft. E, NW cor. NE ..... Washing to bottom 900 ft.
Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-11 ..... S.D. 1,606 ft.



100,000-gallon elevated tank installed by large oil company for general water supply.

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for practically every TANK and PLATEWORK Requirement—

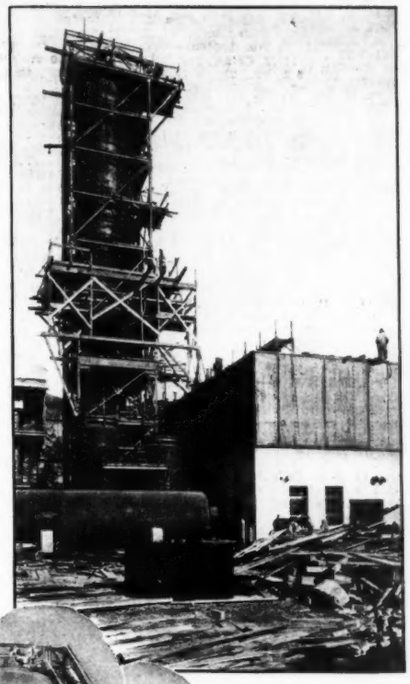
Whether it's a small cylindrical tank or a whole tank farm of "80's"—a Wiggins Roof to stop evaporation loss or a pressure container for storing "wild" products—an elevated water tank or a bubble tower—whatever your need in the line of tanks, roofs, pressure storage or refinery platework—get a quotation on Horton products for that particular use. Four fabricating plants with modern machinery insure prompt handling and high-grade workmanship. Our erecting crews are available anywhere for a big job or a little one. Ask our nearest office for quotations on any work you are considering.

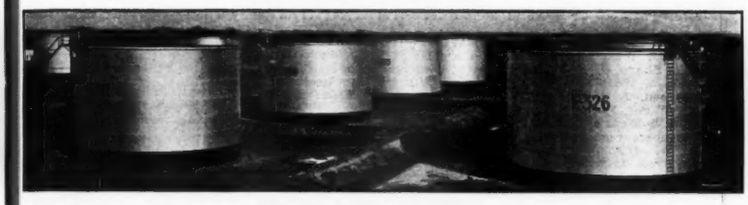
OTHER PRODUCTS

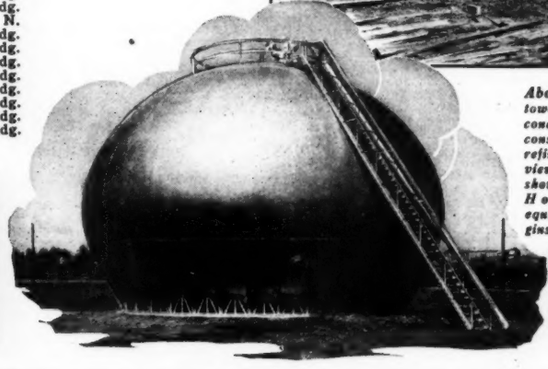
Horton products include: Wiggins Pontoon Roofs, Wiggins Breather Roofs, Hortonspheres, rundown tanks, cylindrical tanks, standpipes, agitators, absorbers, crude stills, smokestacks, gas holders, refinery platework, in addition to the equipment illustrated.

CHICAGO BRIDGE & IRON WORKS

DALLAS	1241 Burt Bldg.
HOUSTON	1119 Electric Bldg.
TULSA	2406 Exchange Bank Bldg.
BIRMINGHAM	1536 Fiftieth St., N.
CHICAGO	2128 Old Colony Bldg.
DETROIT	1514 Lafayette Bldg.
CLEVELAND	2204 Midland Bank Bldg.
NEW YORK	3147 Hudson Terminal Bldg.
PHILADELPHIA	2615 "1616" Walnut St. Bldg.
BOSTON	1517 Consolidated Gas Bldg.
SAN FRANCISCO	1054 Rialto Bldg.
LOS ANGELES	1323 Pacific Mutual Bldg.

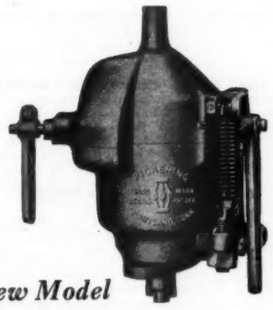






Above, 92-ft. bubble tower and a large condenser box under construction at a refinery. The two views at the left show a group of Horton tanks equipped with Wiggins Roofs, and a 10,000-bbl. Hortonspheriod used by the Phillips Petroleum Co. for storing volatile products.

OGJ 12-3 Gray



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Used always in water solution, Oakite materials cannot burn or explode. Yet they clean more quickly, more thoroughly and at lower cost. Oakite cleaning speedily removes encrusted oil, muck and dirt from equipment without scrubbing or scraping.

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OAKITE

Industrial Cleaning Materials and Methods

Loring Oil Co.'s No. 13 Bowman-Hicks, 1,230 ft. S, 275 ft. E, NW cor. SW NW, Sec. 15-7-12 ..... Set 9⅝-in. 2,950 ft.
Lyons & Neely's No. 3 Byrd, Sec. 1-7-11 ..... Set 6-in. 2,382 ft.
L. K. McGuffin's No. 1 Bush, NW cor. NW SE, Sec. 1-7-11 ..... S.D. 400 ft.
Ben Merritt, tr.'s No. 2 Byrd, Sec. 1-7-11 ..... Drlg. 800 ft.
Ohio Oil Co.'s No. 12 Bowman-Hicks, Sec. 2-7-12, 150 ft. N and W, SE cor. NE NE ..... W.O.S.R. 2,271 ft.
H. W. Perritt's No. 6 Bowman-Hicks, Sec. 2-7-12, 150 ft. S and W, NE cor. SE NE ..... S.D. 1,900 ft.
Eddie Self's No. 2 Jacob, Sec. 1-7-11 ..... Dry and abnd. 2,549 ft.
Stovall, tr.'s No. 2 Nulton, 241 ft. N, 330 ft. W, SE cor. NE NW, Sec. 1-7-13 ..... Dry and aband. 2,474 ft.

UNION PARISH

Interstate Nat. Gas Co.'s No. 27-C Howard, 660 ft. S and E. from C, Sec. 32-20-3e ..... Comp. 2,000,000 ft. gas, 2,223 ft.
Nemours Corp.'s No. 1-C Harrell, Sec. 7-20-4e, 1,980 ft. S and E. of NW cor. ..... Arrng. set 4½-in. 2,146 ft.
Stovall Gas Co.'s No. 2 Howard, Sec. 32-20-3e, 1,320 ft. S, 1,980 ft. W, NE cor. ..... Drlg. 2,142 ft.

ARKANSAS

UNION COUNTY—EL DORADO

Lion O. & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 246 ft. W, NE cor. Lot 5, NE, Sec. 4-16-15 ..... Drlg. salt rock 6,927 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... S.D. 2,608 ft.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. S½ NW, Sec. 11-18-13 ..... T.A. 3,586 ft.
Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13 ..... Location.
Wilson & Chapman's No. 1-B Hadley, Sec. 3-18-13, 330 ft. S and W, NE cor. SE NW ..... Repairing derrick 3,548 ft.

EAST TEXAS

PANOLA COUNTY

Daisy O. & G. Co.'s No. 1 Rucks, Jno. Palmer Sur. ..... S.D. 3,270 ft.
Dillon & Braham's (was W. G. Banks et al's) No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur. ..... Abnd. 1,555 ft.
Nat. Gas. Prod. Co.'s No. 8 Floyd, 50 ft. S and 100 ft. W from No. 1 Floyd, Ben C. Jordan Sur. ..... Drlg. 1,900 ft.
United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in B. C. Jordan Sur. ..... Location.

MISSISSIPPI

HINDS COUNTY

James Alexander, trustee's No. 1 Casey, Sec. 12-5n-1e, 1,425 ft. E, 496 ft. S, NW cor. SW ..... Comp. 30,000,000 ft. gas 2,388 ft.
Ferguson-Fuller et al's No. 1 Sours et al, Sec. 34-6n-1e, 665 ft. E, 50 ft. S, NW cor. SW ..... S.D. 2,368 ft.
Howie & Howie's No. 1 fee, Sec. 34-6-1e, 400 ft. E, 570 ft. S, NW cor. SW SW ..... Set 6⅝-in. 2,378 ft.
Love Pet. Co.'s No. 1 Interior Lbr. Co., Sec. 2-5n-1e, 990 ft. W, 270 ft. N, SE cor. SW ..... Derrick.
Millsaps College's No. 1 fee, Sec. 34-6n-1e, 2,225 ft. N, 1,412 ft. W, SE cor. Sec. ..... Location.

RANKIN COUNTY

Anderson et al's No. 1 Brown, Sec. 12-5n-1e, 166 ft. E, 788 ft. S of center of section ..... Set 6⅝-in. 2,380 ft.
Cummins & Montgomery's No. 1 Ivey, Sec. 13-5n-1e, NE Lot 10, Blk. D, E. Jackson Pl., first addn. ..... Derrick pattern.
J. E. Grandstaff et al's No. 1 East, Sec. 12-5n-1e, 1,-180 ft. W and 515 ft. N, SE SW ..... Comp., gauged 52,000,000 ft. gas; T.D. 2,382 ft.
McGuire et al's No. 1 Motor, Sec. 12-5n-1e, 1,763 ft. N, 1,800 ft. W, SE cor. ..... Comp., est. 40,000,000 ft. gas at 2,372 ft.
Muse & Muse's No. 1 Seany, Sec. 12-5n-1e, 2,670 ft. E, 375 ft. S, NW cor. SW ..... Set 10-in. 82 ft.
Muse & Muse's No. 1 Wright, Sec. 12-5n-1e, 169 ft. W, 1,163 ft. N, SE cor. SW ..... Testing 2,381 ft.
Pioneer Oil & Gas Co.'s No. 1 Green, Sec. 12-5n-1e, 180 ft. W, SE cor. SW SW ..... Derrick.
Pioneer Oil & Gas Co.'s No. 1 C. M. Motor, Sec. 12-5n-1e, 937 ft. N and E SW cor. section ..... Derrick.

WILDCAT OPERATIONS IN MISSISSIPPI

CLARKE COUNTY

Company, farm and location—	Remarks:
Gulf Ref. Co.'s No. 1-A Long Bell Lbr. Co., C SW SW, Sec. 10-2n-16w	Cored gray sand 4,398 ft.

HINDS COUNTY

Atkins et al's No. 1 Crane Lawrence, Sec. 23-6n-1e, 300 ft. E, 132 ft. N, SW cor. NE SE ..... Derrick.
James Alexander, Trus., No. 1 Permanent Investment Co., Sec. 33-6n-1e, 171 ft. N, 230 ft W. of SE cor. Sec. ..... Set 15½-in. csg. 22 ft.
Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e ..... S.D. 74 ft.
Ridgeway & McGehee, Inc.'s No. 1 Mosni, Sec. 24-6n-1e, 200 ft. N, 100 ft. E, SW cor. of E½ SW ..... Rigging up.
Southern Pet. Co.'s No. 1 Wilson (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 23-6-1e ..... S.D. 20 ft.; W.O.
F. E. Stewart et al's No. 1 Miss. Cotton Seed Products Co., Sec. 4-5n-1e, 330 ft. S and 440 ft. W of NE cor. SE ..... Derrick.

HUMPHREYS COUNTY

Danciger O. & G. Co.'s No. 1 Belgrade Lbr. Co., C NW, Sec. 29-14n-4w ..... Dry and aband. 3,014 ft.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9 ..... S.D. 2,360 ft.

LOWNDES COUNTY

Lowndes County Oil & Dev. Co.'s No. 1 Carr est., Sec. 34-17-16e, 1,320 ft. E, 330 ft. S, NW cor. Sec. ..... Derrick.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... S.D. 3,015 ft.
McAlpine et al's No. 1 Cowart, second hole, Sec. 2-12-19. . T.A. 3,793 ft.

NEWTON COUNTY

Bob Dalton's No. 1 Majure, 400 ft. N, 300 ft. E of SW cor. SE, Sec. 25-6n-11e ..... S.D. 940 ft.

NOXUBEE COUNTY

Thompson & Donohue's No. 1 Donohue, Sec. 25-16n-17e. . S.D. 1,735 ft.

RANKIN COUNTY

Attkisson & Dyer's No. 1 Valentour, 200 ft. S, 200 ft. E, NW cor., Sec. 18-5n-2e ..... S.D. 1,740 ft.
Gulf Ref. Co.'s No. 1-A Hanna, Sec. 23-6n-1e ..... 3,245 ft., hd. gray sandy lime.
Majestic O. & G. Co.'s No. 1 Elton Lbr. Co., Sec. 10-4n-3e. Derrick.
Square Deal O. & G. Co.'s No. 1 Spann, NW cor. SE NE, Sec. 13-5n-1e ..... Comp. 5,000,000 ft. gas 2,499 ft.
United Gas Public Service Co.'s No. 1-A McLaurin, 3,-950 ft. E, 660 ft. S, NW cor. SW, Sec. 8-5n-2e ..... Dry and aband. 3,296 ft.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-5-9 ..... Derrick.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-2 ..... S.D. 2,607 ft.
United Gas Public Service Co.'s No. 1 Tchula Co-Operative Store, 1,980 ft. W, 660 ft. N, SE cor. SE, Sec. 33-15n-2e ..... Reaming 3,606 ft.

WEBSTER COUNTY

P. J. McAlpine's No. 1 Henly (was Cumberland Oil Co.'s No. 1 Henly), SE NW, Sec. 15-21n-11e ..... S.D. 1,800 ft.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 44)

Weneedan Oil Co.'s No. 2 Palmer, Chas. Underton Sur. . . Rigging up to pump 2,225 ft.
Sun Oil Co.'s No. 10 Carr ..... Shale showing oil 1,930 ft.; cem. 6⅝-in. casing 1,776 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Prod. Co.'s No. 34 Taylor, James Hamilton Sur. No. 52, 141 ft. S of NW cor. of J. W. Howe 130-acre tract and 430 ft. W at right angles ..... Rig.
Humble Oil & Ref. Co.'s No. 1 Hooks, James Hamilton Sur. No. 52, 904 ft. N of SW cor. along W line of lease and 396 ft. E at right angles ..... Rig.
Navarro O l Co.'s No. 2-A Cain (W.O.), James Hamilton Sur. No. 98, 458 ft. from N line and 65 ft. from W line of tract ..... Perforating 4½-in. liner 3,964 ft.
Rio Bravo Oil Co.'s No. 10-A Settegast (W.O.), Jos. Kopman Sur. No. 44, 1,200 ft. S and 350 ft. W of N E cor. of lease ..... Drlg. out bridge 3,469 ft.
Rio Bravo Oil Co.'s No. 18-A Settegast, J. Kopman Sur. (W.O.) ..... Rig up to deepen 4,512 ft.
Rio Bravo Oil Co.'s No. 23-A Settegast, Jos. Kopman Sur. No. 44, 1,375 ft. S and 200 ft. W of NE cor "A" lease ..... Derrick.
Southern Pet. Co.'s (Tilton et al) No. 1 N. C. Barnes, B.B.B.&C. Sur. No. 1,028, 15 ft. from N line and 25 ft. from W line of Blk. 49, Jones Subd. ..... Drlg. shale and lime 4,322 ft.
Warner-Quinlan Co.'s No. 1 Minchen (W.O.), B.B.B.&C. Sur. No. 1,029, Blk. 7 ..... Drlg. sandy shale 4,788 ft.

BLUE RIDGE—FORT BEND COUNTY

Coronado Oil Co.'s No. 2 Blakely, 430 ft. W, 575 ft. N of SE cor. of Lot 8, Blk. D, E. Drew Sur. ..... Drlg. sticky shale 4,208 ft.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 20 Cade, N. Fitzsimmons Sur., 161 ft. W of No. 15 and 146 ft. SW of No. 17 ..... Shut down 60 ft.
Yount Lee Oil Co.'s No. 23 Cade, N. Fitzsimmons Sur., 300 ft. S of No. 22 ..... Drill stem stuck 4,762 ft.
Yount Lee Oil Co.'s No. 24 Cade, 1,010 ft. from NE line and 1,250 ft. from NW line of N. F tzsimmons Sur. . . Drlg. shale and lime 2,504 ft.

DAMON MOUND—BRAZORIA COUNTY

Intercoastal Oil Co.'s No. 6 Wisdom (D.D.), A. Darst Sur., Blk. 51, 2,550 ft. from NE line and 1,150 ft. from NW line of 840-acre tract ..... Drlg. shale and lime 3,396 ft.
Intercoastal Oil Co.'s No. 8 Wisdom, 155 ft. from NW line and 150 ft. from NE line, Lot 52, Blk. D, Wisdom Subd., A. Darst Sur. ..... Sand showing oil 3,554-89 ft., cem. 8¼-in. casing 3,530 ft., drilled plug to set screen.
The Texas Company's No. 1 Cave heirs, 75 ft. SW, 150 ft. SE at right angles from N cor. of Lot A, Blk. 73, Wisdom Subd., A. Darst League ..... Spudded.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 31 Moore, 3,816 ft. S and 2,432 ft. W of NW cor. of James Frazier Sur. in Mark Smith Sur. ..... Spudded.

ORANGE—ORANGE COUNTY

Jefferson Prod. Co.'s No. 1 Bland ..... Sandy shale 2,980 ft.; drill stem stuck; abandoned.

LOCKWOOD—FORT BEND COUNTY

Cullen & West and Gulf Prod. Co.'s No. 4-A Lockwood & Sharp, J. Rabb Sur., 550 ft. W of No. 2-A ..... Derrick.
Cullen & West and Gulf Prod. Co.'s No. 2 H. P. Lockwood, J. Rabb Sur., 300 ft. N and 900 ft. W out of SW cor. 383-acre tract ..... Drlg. shale 5,058 ft.
Cullen & West and Gulf Prod. Co.'s No. 1 J. H. P. Davis, Robert Peebles Sur., 350 ft. S and 900 ft. E of SW cor. of A. P. George 619-acre tract ..... Drlg. gum' o and lime 3,238 ft.
Gulf Prod. Co.'s No. 1 Mary D. Booth Meyers, J. Rabb Sur., 800 ft. N of Cullen & West's No. 2-A Lockwood & Sharp ..... Drlg. gumbo and boulders 2,198 ft.

NASH—BRAZORIA COUNTY

Harrison & Abercrombie's No. 15 Nash (D.D.), Thos. Alsbury League ..... Cutting screen to deepen 4,844 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 122-A Cotton ..... Comp. pumping 20 bbls. 542 ft.
Rio Bravo Oil Co.'s No. 123-A Cotton ..... Rig.

MARKHAM—MATAGORDA COUNTY

Deering & Newman's No. 1 Hawks (W.O.), W. H. Gayner Sur., 200 ft. from S line and 100 ft. from E line of tract ..... Total depth 4,150 ft.; setting whipstock.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 6 Lost Lake, 2,381 ft. W and 289 ft. S of No. 5 in Lost Lake ..... Drlg. sticky shale 5,950 ft.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

Gulf Prod. Co.'s No. 4 McFaddin, J. McFaddin Sur. ..... Drlg. shale 6,105 ft.
B. Manning's No. 1 Sergent, James McFaddin Sur., 50 ft. S and 450 ft. E of Texas Gulf Sulphur Co.'s No. 2 Sergent in Humble tract ..... Abandoned 648 ft.

REFUGIO—REFUGIO COUNTY

Larco Gas Co.'s No. 4 Strauch heirs, 150 ft. from N line and 150 ft. from W line, Lot 6, Blk. 2 ..... Coring shale 3,605 ft.
Mission Drilling Co.'s No. 3 J. J. O'Brien, Refugio town tract, 150 ft. from N line, 150 ft. from E line of 12½-acre tract ..... Drlg. shale 5,400 ft.
Moody Seagraves Prod. Co.'s No. 2-A St. John, Refugio town tract, 600 ft. E of No. 1-A and 200 ft. from N line of lease ..... Sand showing oil 5,504-16 ft.; to make drill stem test.
United Prod. Corp.'s No. 2-A W. J. Fox, Wm. Hews and L. Brown Sur., 2,099 ft. NE along SE line from SE cor. of lease, thence 1,690 ft. NW at right angles ... Coring shale 5,946 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co.'s No. 32 Miller, 925 ft. E and 480 ft. S of NW cor. S half of NW of Sec. 9-10s-9w ..... Drlg. rock 2,137 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 10 Housierre-Latrielle, 5,435 ft. E and 1,070 ft. N of SW cor., Sec. 47-9s-2w ..... Tested dry 7,825 ft.; cutting out screen to deepen.

SORRENTO—ASCENSION PARISH

Gulf Ref. Co.'s No. 20 United Land Co., 4,040 ft. N and 760 ft. W SE cor. Sec. 15-10s-4e ..... Drlg. shale 4,702 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 23 Watkins (W.O.), 2,495 ft. W and 132 ft. N of SE cor. Sec. 13-12s-10w ..... Rig up to deepen 2,844 ft.
Calcasieu Oil Co.'s No. 29 Watkins, 1,483 ft. W and 1,206 ft. N of SE cor. of Sec. 13-12s-10w ..... Sandy shale 2,705 ft.
R. E. Seiss' No. 3 Vincent, 2,195 ft. S and 1,220 ft. W of NE cor. Sec. 30-12s-10w ..... Location.
R. E. Seiss' No. 2 J. M. Vincent ..... Shut down 2,163 ft.
J. G. Sutton's No. 3 Irwin, 1,520 ft. N and 1,395 ft. W of SE cor. of Sec. 13-12s-10w ..... Drlg. shale 2,500 ft.
Yount Lee Oil Co.'s No. 44 State, 1,110 ft. N and 1,915 ft. W of SE cor. Sec. 13-12s-10w ..... Location.
Yount Lee Oil Co.'s No. 45 State, 1,220 ft. N and 810 ft. W of SE cor. Sec. 13-12s-10w ..... Location.
Yount Lee Oil Co.'s No. 47 State, 1,420 ft. N and 1,408 ft. W of SE cor. Sec. 13-12s-10w ..... Drlg. rock 2,105 ft.

VINTON—CALCASIEU PARISH

Marrs McLean's No. 9 Gray (D.D.) ..... Coring sand 2,201 ft.
Vinton Pet. Co.'s No. 10 Gray (W.O.) ..... Sand showing oil 3,420 ft.; set 1 joint of 3-in. screen; comp. pumping 120 bbls. pipe line oil.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 5 Sweet Lake (D.D.), Sec. 12-12s-8w. . Total depth 5,653 ft.; sidetracking hard sandy lime 5,484 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 767 fee, 328 ft. E and 180 ft. N of C of Sec. 29-9s-10w ..... Oil sand 3,737-45 ft.; 9⅝-in. casing at 3,737 ft.; drilled plug to set screen.

MISCELLANEOUS WILDCATS
TEXAS

AUSTIN COUNTY

O'Hara Oil & Gas Co.'s No. 1 Neilous, J. C. Cummings Hacienda Sur., 650 ft. N of No. 1 Schroeder in 18-acre tract, north edge Mill Creek ..... Derrick.

Pomacal & Boletka's No. 1 Schebajsa, 329 ft. N, 78 deg. E of N. cor. B. Dottery Sur., near center of SW line of S. F. Austin 4 League on west fork of Mill Creek.. Set 10-in. casing 120 ft.

BRAZORIA COUNTY

W. D. Southerland's No. 1 C. W. Chapman, Andrew Robinson Sur., 294 ft. from S line, 104 ft. from E line of Strip 2 ..... Drlg. shale 510 ft.

The Texas Company's No. 2 Belcher, Harvey N. Little Sur., 1,728 ft. southeasterly from N cor. of S half of Sur., along NE line and thence 123 ft. at right angles ..... Drlg. sand 40 ft.

United Oil Syndicate's No. 1 Levitt, 900 ft. from W line and 400 ft. from S line of John Peske Sur. ..... Total depth 1,594 ft. in gumbo; drill stem stuck.

BURLESON COUNTY

Marek & Son's No. 3 A. Marek, N. McFaddin Sur., 1,068 ft. N and 225 ft. W of SE cor. of tract ..... Drlg. sand 2,191 ft.

M. O. & T. Corp.'s No. 1 Rigers ..... No report.

FORT BEND COUNTY

Stone & Wyman's No. 1 Beard, H.&T.C. Sur. No. 118, 1,150 ft. from NW line and 1,892 ft. from NE line ... Shut down 1,275 ft.; 2 joints drill stem lost in hole.

GRIMES COUNTY

Rianjo Oil Co.'s No. 2 Cuthrell, Pat B. O'Connor Sur., C of 110-acre tract ..... Shut down for fuel 3,534 ft.

HARRIS COUNTY

Givens & Daylault's No. 1 Lobit, David Middleton Sur., Blk. 19, Lobit Subd. ..... Drlg. sand and shale 2,595 ft.

Humble Oil & Ref. Co.'s No. 5 Minnetex, Mykawa, 150 ft. from S line and 200 ft. from W line, Lot 261, Wm. Lovett Sur. ..... Location.

Louisiana Oil & Dev. Co.'s No. 1 J. W. Wilson, W. Ritchie Sur. ..... Shut down 420 ft.

Shubert & Alexander's No. 1 Herman Hale, 1,058 varas E of NW cor. R. A. Hanks Sur., thence 790 varas S and thence 70 varas W 74 deg. ..... Shut down for fuel 2,540 ft.

JACKSON COUNTY

Chicago-Gulf Oil Co.'s No. 9 Drushell, Edna F. Rodriguez Sur., 1,080 ft. N, 58 deg. E No. 8 ..... Gas sand 2,640-44 ft.; cem. 6⅝-in. casing 2,640 ft.

JASPER COUNTY

Hext Drlg. Co.'s No. 1 Flourney, B. F. Jones Sur., 600 ft. NW of Helmerich & Payne's No. 1 Flourney .... Drlg. gumbo 2,348 ft.

JEFFERSON COUNTY

Humble Oil & Ref. Co.'s No. 1 Nelson, Wm. Rice Sur., 550 ft. from N line and 50 ft. from E line of W half of 1,071-acre tract ..... Drlg. shale 5,736 ft.

John I. Pipkin and Elam's No. 1 Broussard, McGaffey Sur., 800 ft. from S line in center E and W of 205-acre tract ..... Shut down in gumbo 500 ft.

Texas Gulf Sulphur Co.'s No. 1 Junker, W. H. Smith League, 100 ft. S and 1,000 ft. W of NE cor. of tract.. Sulphur test.

Texas Gulf Sulphur Co.'s No. 1 Thompson, Fannett, Wm. Smith Sur., 1,950 ft. W and 1,600 ft. S of NE cor. of Thomas 446-acre tract ..... Abandoned sulphur test.

Texas Gulf Sulphur Co.'s No. 1 Thomas Fannett, Wm. Smith Sur., 1,950 ft. W, 1,600 ft. S of NE cor. of Thomas' 446-acre tract ..... Sulphur test.

Westbury Oil Co.'s No. 4 West, 450 ft. W and 4,210 ft. S of NE cor. of T. D. Yoakum Sur. ..... Shut down in gumbo 600 ft.

LIBERTY COUNTY

L. B. House's (I. R. Ingram) No. 1 C. T. Palmer, James Fenner Sur., 1,000 ft. from W line and 850 ft. from S line of tract ..... Shut down 3,620 ft.

Hamm et al's No. 1 Harvard, Dav's Hill ..... Gumbo 1,015 ft.; shut down.

MATAGORDA COUNTY

United North & South Oil Co.'s No. 1 Stoddard, J. C. Keller Sur., 150 ft. W and 545 ft. N of SE cor. Blk. 53, Buckeye townsite ..... Shale 5,543 ft.; sidetracking junk 5,400 ft.

Harvey Smith's No. 1 Boker (Citrus Grove), J. V. Criswell Sur., Robbins Subd., 2,000 ft. S and 2,000 ft. E of NW cor. of Lot 14 and Lot 15 ..... Drlg. hard lime 4,065 ft.

MONTGOMERY COUNTY

Pevehouse Oil Co.'s No. 1 Sealey, Jas. Pevehouse Sur., 1,575 ft. N of N line of Horton & Woodson's 1,562-acre tract and 2,226 ft. E of W line of H.&W. 1,870-acre tract ..... Coring sandy shale and lime 1,525 ft.

Humble Oil & Ref. Co.'s No. 1 W. A. Renn, 750 ft. from N line and 900 ft. from E line of S. J. McFarland Sur. ..... Drlg. shale 4,857 ft.

Strake et al's No. 1 South Texas Dev. Co., 468 ft. in westerly direction along N line of Theo. Slade Sur. from SW cor. of A. McGowan Sur., and thence 750 ft. in southerly direction at right angles from said line in Slade Sur. ..... Drlg. shale 4,976 ft.

Stanolind Oil & Gas Co.'s No. 1 R. M. Gary, Jacob Shannon Sur., 150 ft. SW of SW cor. D. Pitts 91-acre tract in R. M. Gary 633-acre tract ..... Location.

NEWTON COUNTY

R. T. Briscoe et al's No. 1 Joe Inman, approx. 1,900 ft. E and 500 ft. N of SW cor. of J. M. Scott Sur. ..... No report.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 250 ft. from E line of tract ..... Total depth 4,063 ft.; sidetracked 1,200-2,200 ft.; shut down.

Crew Oil Co.'s No. 1-A Mansfield, 50 ft. E of No. 1 ..... Shut down 2,060 ft.

POLK COUNTY

Freeman et al's No. 2 Freeman ..... Shut down 3,162 ft.

T. B. Hoffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 271 ..... Shut down 1,517 ft.

Trans-Coastal Oil Co.'s No. 1 M. E. Roberts, J. F. Rumayor Sur., 350 ft. from W line and 150 ft. from N line of tract ..... Shut down 734 ft.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Damaan, 150 ft. from N line and 150 ft. from W line of Blk. 14, Bonnie View Ranch Subd. ..... Shut down 4,627 ft.

J. C. Dixon's No. 1 Peck, 450 ft. S, 150 ft. E of NW cor. of S half of Sec. 24, Bonnie View Ranch Subd., Estaban Lopez Sur. ..... Cem. 12½-in. casing 100 ft.

Humble Oil & Ref. Co.'s No. 1 O'Connor, John Keating Sur., 6,012 ft. S from NE cor. along SE line of Lon T. Ross Fur., thence 7,375 ft. W at right angles in John Keating Sur. ..... Sand showing oil 4,127-55 ft.; cem. 7-in. (O.D.) casing 4,123 ft.

SAN JACINTO COUNTY

E. P. Edwards' No. 1 J. R. Bennett, Cold Springs ... Shut down 750 ft.

TRINITY COUNTY

Scientific Producers Co.'s No. 1 Thompson, I.&G.N. Sur. No. 47, 50 ft. out of NE cor. of H. K. Thompson 199-acre tract ..... Rig.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell ..... Sand and shale showing oil 1,255 ft.; cem. 6-in. casing 1,218 ft.; standing.

Allied Pet. Co.'s (Texas Southern Pet. Co.) No. 3 Wilson, Mrs. E. Cherry Sur. No. 798, 1,500 varas from W line and 600 varas from N line ..... Fishing 5,025 ft.

VICTORIA COUNTY

Bunte et al's No. 1 Keeran, 3,714 ft. NE along railroad from SW line of Martin DeLeon Sur., and thence 1,600 ft. NW at right angles ..... Drlg. shale 4,148 ft.

Houston Oil Co.'s No. 1 Conrad, T.&N.O. Sur. No. 1, 1,100 ft. from SW line and 100 ft. from NW line.... Heaving shale 5,225 ft.; cmtd. to 5,100 ft.; hole heaved to 4,700 ft.

The Texas Company's No. 3 McFaddin, S 15 deg. W 6,200 ft. and N 75 deg. W 1,850 ft. out of NE cor. John M. Rine Sur. ..... Drlg. sand 5,505 ft

WALKER COUNTY

Hart Oil Co.'s No. 1 Thompson Lbr. Co., Jose Ortega Sur., 1,265 ft. S, 1,876 ft. W of SW cor. of J. B. Gibson's 71-acre tract ..... No report.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-acre tract ..... No report.

WASHINGTON COUNTY

Moon & Yeager's No. 1 Hahn, 500 ft. from N line and 1,852 ft. from W line of J. H. Alcorn Sur., Abst. 3.. Drill stem stuck 3,635 ft.

Penn-Tex Oil Co.'s No. 2 Kamah Brenham, S. M. Williams Sur. ..... Lime and anhydrite 3,550 ft

WHARTON COUNTY

W. H. Wallace et al's No. 1 Lee, 600 ft. S and 800 ft. W from NE cor. Sec. 18, G.H.&H. Sur. ..... Abandoned in shale 4,280 ft.

SOUTH LOUISIANA
ASCENSION PARISH

McElroy Pet. Co.'s No. 2 Lacey, 150 ft. S, 150 ft. W of NE cor. of Sec. 29-10s-4e ..... No report.

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... Shut down 875 ft.

I. O. Davis' No. 1 Industrial, Sec. 29-9s-10w ..... Standing 6,568 ft.

Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... Shut down 3,650 ft.

Success Oil Co.'s No. 1 Hewitt, 90 ft. out of SW cor., Sec. 11-9s-11w ..... Rig.

EVANGELINE PARISH

Emile LeDeau's No. 1 Vidrine, 260 ft. W and 350 ft. S of NE cor. of Sec. 47-3s-2e ..... Derrick.

IBERIA PARISH

Jefferson Lake Oil Co.'s No. 25 Lake Peigneur, Sec. 58-12s-5e, 400 ft. N of No. 24 ..... Sulphur test.

IBERVILLE PARISH

Standard Oil Co.'s No. 2 Myrtle Grove-Wilbert, Bayou Choctaw, 2,040 ft. N and 600 ft. W of C of Sec. 52-9s-11e ..... Building derrick.

Standard Oil Co.'s No. 2 Gay, Bayou Choctaw, 4,500 ft. N and 600 ft. E of SW cor. SE of Sec. 52-9s-11e .... Drlg. gumbo 1,200 ft.

Standard Oil Co.'s No. 6 Schwing, Bayou Blue, Sec. 73-9s-11e, 317 ft. S of No. 2 ..... Drlg. sandy shale 6,100 ft

LA FOURCHE PARISH

State Prod. Co.'s No. 1-B Stark, 1,921 ft. E and 1,540 ft. S of NW cor. of Sec. 71-15s-15e ..... Sulphur test.

The Texas Company's No. 3 La.L.&E., Leesville, 4,439 ft. S and 468 ft. E of NW cor. Sec. 28-21s-22e ..... Drlg. gumbo 1,810 ft.

PLAQUEMINES PARISH

Humble Oil & Ref. Co.'s No. 5 Cockrell-Moran, Lake Grand Ecaille, 10,377 ft. N and 2,614 ft. W of NE cor. of Twp. 21s-26e ..... Location.

POINTE COUPEE PARISH

Grand Bay Oil & Gas Co.'s No. 1 Moniotte, 10,140 ft. S and 13,450 ft. E of NW cor. Twp. 5s-11e in Sec. 94... Water sand 200 ft.

TERREBONNE PARISH

La. Gas & Fuel Co.'s No. 2 Minor, 3,480 ft. S and 1,980 ft. E of NW cor. Sec. 3-18s-16e ..... Cored sand showing gas 3,878-82 ft.; drill stem test estimated 2,000,000 ft. dry gas; cmtd. csg

The Texas Company's No. 2 La.L.&E., Bay Junop ..... Drlg. sandy shale 5,900 ft.

The Texas Company's No. 4 La.L.&E., Bay Junop ..... Location.

The Texas Company's No. 5 State, Lake Pelto, 1,505 ft. N and 1,539 ft. W of SE cor. of Sec. 8-23s-18e..... Driving piling.

The Texas Company's No. 10 State, Lake Barre ..... Location.

The Texas Company's No. 12 State, Lake Barre ..... Location.

The Texas Company's No. 14 State, Lake Barre ..... Location.

The Texas Company's No. 1 La.L.&E., Lake Barre, 2,645 ft. S and 595 ft. E of NW cor. Sec. 30-21s-20e ..... Spudded.

VERMILLION PARISH

Pure Oil Co.'s No. 2 Southwest Louisiana Land Co., 1,300 ft. E and 300 ft. S of NW cor. Sec. 4-12s-1w ..... Drlg. sand with streaks of shale and sand 7,826 ft.

WEST FELICIANA PARISH

Putnam Syndicate's No. 2 Como Plantation, Sec. 51-1s-4w. Drlg. shale 2,335 ft.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 35)

HARPER COUNTY

Sinclair O. & G. Co.'s No. 1 Howell, C SW SW, Sec. 14-26-24w ..... 20,000,000 ft. gas 5,350-5,400 ft.; T.D. 8,539 ft; S.D; sprayed 50 bbls. gasoline.

HASKELL COUNTY

Ault et al's No. 1 Harrison, CWL SE NE, Sec. 14-9-19..S.D. 650 ft.
Ault et al's No. 1 Hall, NW SW SW, Sec. 14-9-19 .....S.D. 2,000 ft.
Ault et al's No. 1 Hall, SE NW, Sec. 25-19-9 .....S.D. 200 ft.
Holden's No. 1 Phillips, SE cor., Sec. 3-9-18e ..... S.D. 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW, Sec. 10-9-18e..S.D. 2,387 ft.

KAY COUNTY

W. H. Atkinson et al's No. 1 Hayes, SE NE, Sec. 24-28-3..Rig.
Lewis et al's No. 1 Harris, SE NW, Sec. 14-25-1 .....Location.
Mummert Drgl. Co. et al's No. 1 Cormick, C NW SE, Sec. 9-27-3 .....S.D. 3,693 ft.
Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w .....Rig on ground.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE, Sec. 8-7-18w .....S.D. 320 ft.

LATIMER COUNTY

Choctaw Oil Co.'s No. 1 Fitzgerald, C NW NW, Sec. 1-6-22 Drlg. 940 ft.
P. English's No. 1 Unknown, NW SE, Sec. 16-6-19 .....S.D. 1,542 ft.

LINCOLN COUNTY

Hilton Phillip's No. 1 Phillips, SW NW, Sec. 2-14-3 .... Drlg. 4,620 ft.
Mote et al's No. 1 School Land, NW cor., Sec. 36-17-5 .. Drlg. 1,160 ft.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE, Sec. 32-9-16 ..... Drlg. 5,825 ft.

MURRAY COUNTY

Capitol Prod. Co.'s No. 1 Cutchall, SE NE, Sec. 6-1-2 .. S.D. 2,425 ft.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE, Sec. 21-11-19 ..S.D. 1,011 ft.

OKFUSKEE COUNTY

Shepard et al's No. 1 Neveas, SE NW SW, Sec. 3-12-10..S.D. 3,638-90 ft; Wilcox sand; hole full wtr.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage Barber, NE cor., Sec. 21-11-3w .....S.D. 1,200 ft.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW, Sec. 17-11-3w .....S.D. 5,515 ft.

PAWNEE COUNTY

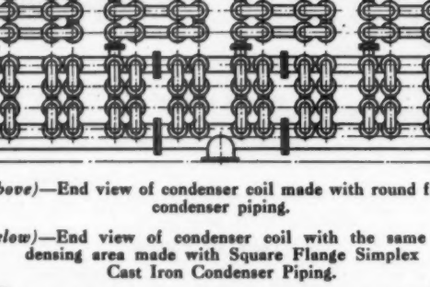
Rookstool's No. 1 Wylie, NW NE SW, Sec. 6-20-5 .....S.D. 1,950 ft.

SQUARE FLANGE SIMPLEX CAST IRON CONDENSER PIPING

permits welcome economies

(Above)—End view of condenser coil made with round flange condenser piping.

(Below)—End view of condenser coil with the same condensing area made with Square Flange Simplex Cast Iron Condenser Piping.



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NEW YORK CITY MINNEAPOLIS DALLAS SAN FRANCISCO
CHICAGO KANSAS CITY LOS ANGELES CLEVELAND
SEATTLE

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Cochran et al's No. 1 Green, NE cor. SW, Sec. 15-23-5..Rig.

PITTSBURG COUNTY

Tape Oil Co.'s No. 1 Fulton, SE, Sec. 34-7-14 .....S.D. 1,200 ft.
J. Morrison's No. 1 Fowler, NE SE, Sec. 13-7-17 .....Rig.
C. Kennedy's No. 1 Travis, C SW NE, Sec. 15-7-14 .....Rig.
C. Canady's No. 1 Jones, NW cor., Sec. 14-8-14 .....Rig.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW, Sec. 23-12-24w .....C.O. 5,150 ft.
L. C. Hivick's No. 1 Davis, C NW NE, Sec. 4-11-26w .....S.D. 3,375 ft.

SEQUOYAH COUNTY

Braman Oil Co.'s No. 1 Unknown, C NW SW, Sec. 29-12-22 .....Drlg. 1,225 ft.

WAGONER COUNTY

J. A. Barbee's No. 1 Childers, CWL NW SW, Sec. 28-18-17 .....Drlg. 750 ft.

WASHITA COUNTY

Miley Pet. Co.'s No. 1 Wolfe, NE SW, Sec. 23-9-17w....Location.
Cooper & Terhune's No. 1 Blocker, NW cor., Sec. 29-8-19w .....Drlg. 2,740 ft.; show oil 2,459-ft.
Burns & Prince's No. 1 Deck, SW cor., Sec. 21-8-18 .....S.D. 1,140 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW, Sec. 11-1-18..Cementing 4,685 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Morris et al's No. 1 Mansell, SW NW NW, Sec. 9-2s-12 ..S.D. 285 ft.
Brookshire's No. 1 R. W. Rowland, NW NE SE, Sec. 18-3s-10 .....S.D. 1,530 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW, Sec. 7-7-10.T.D. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor., Sec. 35-6s-9 .....T.D. 740 ft; plugged back to 45-80 ft.
Whalen et al's No. 1 Mason, NW SE SW, Sec. 24-6s-9...Drlg. 400 ft.

CHOCTAW COUNTY

Hobson Bros.' No. 1 McChristian, NW NE NE, Sec. 12-6s-19 .....S.D. 730 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE, Sec. 18-4s-8w .....Location.

LOVE COUNTY

Van Vleck's No. 1 Sheldon, NE SE NW, Sec. 14-8s-24 ...Drlg. 1,238 ft.
Autrey et al's No. 2 Cross, CWL SE NE, Sec. 27-6s-2 ...Show oil and gas 970-72 ft. and 1,324-34 ft.; S.D.; T.D. 1,648 ft.

MARSHALL COUNTY

Everette et al's No. 1 Agres, SE NE, Sec. 14-7s-6 .....Drlg. 927-32 ft.; show gas; T.D. 941 ft.
Summers-Sellers' No. 1 Beams, NE SW NE SW, Sec. 20-7s-5 .....Rig.
Dixson's No. 1 McDuffel, SW SE, Sec. 3-7s-6 .....Show oil 791-828 ft; T.D. 1,096 ft; plugging back to 828 ft; abnd. T.D. 1,105 ft.
Newman et al's No. 1 Henry, NW cor., Sec. 22-7s-6.....Location.
Taliaferro et al's No. 1 fee, NW SE SE NW, Sec. 34-5s-5 .....Landing csg.; T.D. 580 ft.

McCURTAIN COUNTY

Prassell et al's No. 1 Wagoner, SE NE, Sec. 5-3s-27.....Rig.
Stamps et al's No. 1 Harris, SW NW SW, Sec. 14-3s-25..S.D. 900 ft.
Stewart's No. 1 Patterson, C SE SE, Sec. 7-6s-24 .....S.D. 756 ft.

PUSHMATAHA COUNTY

George's No. 1 Lane, NW SE, Sec. 32-3s-15.....S.D. 840 ft.
Whitehead et al's No. 1 Messer, SE SW SW, Sec. 35-3s-15 .....S.D. 200 ft.

STEPHENS COUNTY

Brown's No. 1 Hightower, SW SE NE, Sec. 15-3s-5w ....Sand 990-1,004 ft; S.O; S.D.

OIL BURNING VESSELS CONTINUE TO INCREASE

NEW YORK, Nov. 28.—The tanker committee of Lloyds has approved the shipment of asphalt in bulk in separate tanks in which the asphalt is maintained in a liquid form at a high temperature. A number of other interesting developments in the tanker situation are covered in the committee's report, just issued, which says in part:

"The committee has in the past approved proposals for the carriage of asphalt in bulk in separate tanks, in which the asphalt is maintained in a liquid form at a high temperature. During this year proposals have been approved for carrying such cargo in tanks which form part of the structure of the ship, the cargo being maintained at a temperature of 300° F.

"During the period under review the motorship 'Agnita,' intended for carrying petroleum in bulk, has been built to the society's classification, and fitted with tanks of elliptical shape for the carriage of sulphuric acid. These tanks are fitted with arrangements for filling and emptying the sulphuric acid independently of the pumping arrangements of the ship.

"The increase in the number of steam vessels, either originally fitted for burning oil fuel, or subsequently converted for that purpose, continues uninterruptedly, as is illustrated by the following table, which embraces all vessels appearing in Lloyd's register book for the periods named:

Register book—	Steamers fitted for burning oil fuel (tons gross)
July, 1914	1,310,209
(*)	(*)
July, 1919	5,336,678
July, 1920	9,359,334
July, 1921	12,796,635
July, 1922	14,464,162
July, 1923	15,792,418
July, 1924	17,154,072
July, 1925	17,804,122
July, 1926	18,243,539
July, 1927	18,481,759
July, 1928	19,053,016
July, 1929	19,420,895
July, 1930	19,857,710
July, 1931	20,002,307

*War period.

"Among the vessels classed by the society this year, 46 steamers of 203,457 tons were so fitted, this being 39 per cent of the steamer tonnage built to class during the period.

"Of the 557 vessels of 1,758,610 tons classed during the year ended June 30, 1931, 223 (of 1,212,525 tons) were fitted with internal combustion engines, nearly all of them using heavy fuel oil. This figure represents 69 per cent of the total tonnage classed this year, and an increase of nearly 50 per cent over the motor tonnage classed last year, which then constituted a record."

1931 RUMANIAN OIL PRODUCTION HIGHER

NEW YORK, Nov. 30.—Production of crude petroleum in Rumania during the first nine months of 1931 totaled 5,068,674 tons, as compared with 4,341,583 tons in the comparable months of 1930, an increase of more than 16 per cent.

September production in Rumania was 542,422 tons, as compared with 555,861 tons in the previous month and 454,513 tons in September of last year.

VOTE IS DEFERRED

CHATHAM, Ontario, Nov. 28.—Announcement is made that no vote will be taken at the forthcoming municipal elections in London, Ontario, on the application of the Southern Ontario Gas Co. for a natural gas franchise. The City Gas Co., a subsidiary of the Union Gas Co. of Chatham, now supplies London with artificial gas. Negotiations between the Southern Ontario Gas Co. and the London city authorities were initiated last spring, but no agreement has yet been reached.

CALIFORNIA FIELDS

(Continued from Page 47)

oil in the near future and some because of an increased demand for high-grade fuel oil. The Fruitvale Field of Kern County is slated to undergo a revival of work and several wells should be completed in this district during the next several months. This oil is of a rather inferior grade, being neither desirable as straight fuel nor as a refining crude. Fruitvale crude averages approximately 22 degrees A.P.I. and has an exceptionally low B.t.u. value. It has become common practice during the past year to mix this oil with heavy oil from Kern River which runs around 14 degrees and thus secure a fairly good grade of fuel oil. An excellent market for heavy crude has also resulted in increased drilling in Mount Poso and Round Mountain Fields of Kern County, although this work is still a negligible factor. It is significant to note that none of the major companies is involved in the new work being started at either Fruitvale, Mount Poso or Round Mountain. The Victor Oil Co. recently started a new well in the Hovey Hills section of the Midway-Sunset Field and this well should be an interesting test to follow. Cable tools are being used and work is consequently somewhat slower than the general run of work, which for the most part is done with rotary equipment. In the Midway section of the Midway-Sunset Field the Republic Petroleum is testing water shutoff on No. 25-A, a new well in Section 9-32-23. The Republic Petroleum, it will be recalled, opened up a new sand in this area a few years ago and still has a number of undrilled locations.

Lost Hills-Belridge

The Belridge Oil Co. got another wet job in its well No. 49 in the North Belridge Field of Kern County and will consequently be obliged to undertake additional corrective work. This well tested wet on its first cement job at 5,595 feet and the second at 5,474 feet. There is only one incompleted drilling project under way in the North Belridge Field of Kern County at present and it appears quite probable that drilling operations in the future will continue to reflect the existing unfavorable conditions. In the South Belridge Field the General Petroleum has reached a depth of 7,295 feet in No. 1 Berry, but has not yet succeeded in drilling through the brown shale. This well was drilled for the purpose of testing out the Temblor formation in the main portion of the Belridge Field in an effort to determine the productivity of the Temblor which has been found highly productive at Kettleman Hills and in the North Belridge Field. The Lost Hills Field is inactive at present, although the Lincoln Petroleum Co. is still engaged in some minor work.

MICHIGAN FIELDS

(Continued from Page 47)

drilled in the field, ranging in production from 1,000,000 feet to more than 8,000,000 feet daily.

Since the middle of the past summer two pipe lines have been constructed from Isabella gas pools to natural gas systems in four cities. Consumers Power Co. has an 8-inch main running from Broomfield Township to Midland, about 43 miles. The Michigan Gas Corp. has an 11-mile line running from Vernon Township to the city of Mount Pleasant.

There is one oil refinery in Mount Pleasant handling nearly 2,000 bbls. of crude oil a day. This is the Roosevelt Oil Co. refinery. The Bell Gasoline Co. has started to operate its casinghead gas plant in the East Pool, in Greendale Township, Midland County.

Field Operations

Walter Lee McClanahan's No. 1 Solms Brothers, 2½ miles southeast of the proven east pool of 18 big oil producers, was drilled into water in the Dundee sand at 3,510 feet. The well was drilled to about 3,520 feet and it was not definitely decided whether the project would be abandoned or drilled to the Monroe.

The well, located in Greendale Township, NE NE NE Section 26, is regarded as a key well to expansion of the field south, being 2 miles south of the proven area and about a half mile east. Dry holes had been drilled in Sections 20 and 28, Greendale Township, locations south of the proven pool but west of the McClanahan test. The top of the Dundee was reached at 3,482 feet, higher than in the proven field where the top of the Dundee runs at about 3,500 feet.

Oil men expressed the opinion that probably the Solms well is too far west and that despite the adverse results commercial wells probably will be struck as far south of the main pool as the Solms but on locations farther east. No. 1 Ottway, located in Porter Township, 6 miles south and 6 miles east of the Solms test, was recently completed and is flowing about 75 bbls. of oil a day.

No. 1 Morrison, Greendale Township, SW SW SE Section 10, in the proven far east pool, was drilled in with a flow of 45 bbls. an hour. The well was drilled only to the first pay as the present flow is taxing the oil storage facilities. The Dundee was reached at 3,502 feet, the top of the pay at 3,527 feet and completed at 3,529 feet. Other wells in the pool where the Morrison is located as much as doubled their production when drilled deeper to second and third pays. The well is a project of Walter Lee McClanahan's.

The 1,500-bbl. oil flow in 7 hours marked the No. 1 Morrison as the biggest well to be brought in in the Mount Pleasant Field. No. 1 Bernard, 1½ miles west of No. 1 Morrison, flowed 3,600 bbls. of oil in 24 hours when drilled to the third pay. McClanahan said he planned to drill the Morrison well to a greater depth as soon as additional storage tanks had been erected. It has been drilled to the second pay at 3,557 feet.

Strange & Weller's No. 1 Rheimenschnider, Midland County, Greendale Township, Section 14, NW NW NE, was reported flowing 10 bbls. of oil an hour after being drilled to 3,555 feet. Top of the Dundee was struck at 3,495 feet. The well is the farthest east in Greendale Township. It is about a mile east of the pool of 12 producers.

Pure Oil Co. shot its No. 2 Lilly, Greendale Township, Section 18, NE SW NE, and it was reported flowing about 80 bbls. of oil a day. The Dundee was reached at 3,500 feet and drilling completed at 3,582 feet.

Lee Township Tests

No. 1 Hewitt, wildcat in Lee Township, SW NW NW Section 18, 2½ miles east of the proven pool, which was drilled in with a good flow of oil but which deeper drilling resulted in bringing in water, is now regarded as one of the most important developments in the field of recent months. About 200 pounds of lead wool was plugged into the bottom of the shaft and the owner, L. G. Thompson, said the water apparently had been completely shut out and that the well was flowing about 75 bbls. of oil a day. The well has a strong head of gas. The Dundee was struck at 3,501 feet, the top of the pay at 3,539 feet and drilling was completed at 3,567 feet. Striking a commercial well as far east as the Hewitt opens some 1,800 more acres for development.

A drilling permit was issued to J. M. Markle to drill for gas and oil in No. 1 Henry Simms, Midland County, Mount Haley Township, NE SE and E half NW SE Section 4. The project is in wildcat territory far east of any tests at the present time, being still east of the Hewitt wildcat.

Two other permits were issued, one to the Theodore Oil Co. for No. 1, S. M. Robinson, Lee Township, SW SW NW Section 36, and to Milfred D. Wells and George W. Miller for No. 1 Thom, Lee Township, S half SE Section 9. These wells are expected to be important tests of Lee Township in which at the present time only the Hewitt has been drilled. The Robinson well is about 7 miles east and south of the Hewitt and the Thom well is 2½ miles northeast of the Hewitt.

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DETROIT MICHIGAN

duction to not more than 500 bbls. a day from a well, development here has turned chiefly to tests east, north and south of the proven East Pool. Only a few wells are being drilled in proven territory while the tests are increasing each week.

The Talbot Oil Co. announced that an 85,000-bbl. oil storage tank will be built on its Adams lease in Greendale Township, Midland County. The tank is to be used to store oil from its two wells on the Adams farm. At the present time the Pure Oil Pipe Line Co. is taking 500 bbls. of oil a day from each of the wells. The proposed tank will be the greatest in the Mount Pleasant Field. The Pure Oil Pipe Line Co. has seven 55,000-bbl. tanks on its tank farm in Greendale Township. It also has eight tanks of the same capacity at its Bay City, Mich., loading racks.

KANSAS FIELDS

(Continued from Page 36)

a loading rack is Slick, Pryor and Lockhart's No. 1 Heiken, NW cor., Section 25-17-10w, Ellsworth County, which has been shut in for over a year and was estimated to be a 1,500-bbl. well when completed. It was the first test in Ellsworth County to make a commercial well.

Two other wildcat wells in the central western part of the State have been given pipe line connections. Mid-West Exploration Co.'s No. 1 Richardson, in Section 36-22-12w, Stafford County, which has been averaging around 1.130 bbls. a day is the only producing well in the county. The other well was Hilligoss and others' No. 1 Isern, in Section 12-20-11w, Barton County. The Derby Oil Co.'s offset test to the Hilligoss and others' well has been shut down and work temporarily suspended to clear the titles.

In Harvey County, Frank Hollow's No. 1 School Land, in Section 20-22-3w, was underreaming at a total depth of 3,314 feet. Chat was found in the test at 3,206-70 feet, where a showing of oil was found in the top of the formation and water in the bottom.

Barton County

Derby Oil Co.'s No. 1 Berscheidt, NW cor. NE SE, Section 12-20-11w, is rigging up rotary tools.

Butler County

Magnolia Petroleum Co.'s No. 68 Koogler, SW cor. NE NW, Section 30-26-5, is spudding.

Greenwood County

Stanolind Oil & Gas Co. made location for No. 8 Ellis, SE cor. SW NW, Section 27-23-11. Polhamus and others' No. 4 Johnson, NW cor. NE NE, Section 21-24-12, is a rig on the ground. Shull Drilling Co.'s No. 1 Hinchman "B," SW cor. NW NE, Section 17-24-13, is dry and abandoned at 1,605 feet.

Jefferson County

Anderson and others' No. 1 Stiles, NE cor., Section 10-11-18, has drilled to 1,565 feet and shut down.

Kingman County

Skelly Oil Co.'s No. 1 Miles, NE cor., Section 30-27-10w, is preparing to deepen from 3,441 feet.

McPherson County

Smith & Ash and Shell Petroleum Corp.'s No. 2 Kaegi, NE cor. NW NW, Section 21-19-1w, has been completed for 30,754 000 feet of gas in chat 2,017-69 feet. Youker and others' No. 1 Gratton, SE cor. SW SW, Section 24-19-2w, has been deepened from 2,952 feet to 2,967 feet and completed for 743 bbls. Vernon Oil & Gas Co. and Shell Petroleum Corp.'s No. 1 Drum, NE cor., Section 35-19-2w, has been deepened from 2,970 feet to Viola lime 3,368 82 feet and completed for 1,535 bbls. after shooting with 5 quarts.

Reno County

Study, Turner and Frost Drilling Co.'s No. 1 Houry, SE cor. NW, Section 1-23-4w, is cleaning out to test at 3,374 feet where it is now drilling, being deepened from 3,373 feet.

E. L. Study and others' No. 1 Houry, NE cor. SW, Section 1-23-4w, was deepened from 3,333 feet to 3,368 feet and completed for 50 bbls.

Rice County

Gypsy Oil Co. made location for No. 1 Steckel, C NE NW, Section 31-19-10w.

OKLAHOMA FIELDS

(Continued from Page 35)

offset well owners and in the Little River district six leases will be regauged. When the first pools were gauged for their potentials in the Great Seminole district it was believed that the production would show a decline, but this applied to the flush areas only.

Carr City Pool has become the second most active area in the State at the present time as the result of seven new locations that have been started in the past two weeks in Sections 2 and 3-8-5. The field has been limited to 33⅓ per cent of its potential, but this was increased to 50 per cent of the potential on November 1 by the Corporation Commission, and the new activity followed.

One of the developments in the outlying districts of the Greater Seminole district is Mid-Continent Petroleum Corp. and others' No. 1 Fish, SE cor. SW NW, Section 2-6-4, near Sacred Heart, in Pottawatomie County, which was drilling below 3,610 feet in Caney shale.

In the Fish Pool, located along the boundary line of Hughes and Seminole Counties, new locations are being made, the Empire Oil & Refining Co.'s No. 1 F. Fish, NW cor. NE NE, Section 30-7-8, and the same company's No. 1 J. Fish, SW cor. NE SE, Section 10-7-8, were both preparing to spud. A number of other locations have been made in and around the Holdenville and Wewoka areas.

Beckham County Wells Being Plugged

Early producing wells in the Sayre Field in Beckham County are being abandoned as exhausted wells. Three wells in different discovery areas of Beckham County have been plugged. The action is part of the Carter Oil Co.'s program of eliminating old producing wells making water and only a small amount of oil.

Carter Oil Co.'s No. 1 Gray, SE cor. NW SE, Section 15-9-23w, has been plugged at a total depth of 2,763 feet. Many express the opinion that this well was the discovery well in the Sayre Field. It was completed as a 50,000,000-foot gas well, at a total depth of 2,755 feet, by the Twin Hills Oil Co. in July, 1922. Later the well and acreage was sold to the Carter Oil Co. and it was drilled deeper and became an oil well. Carter Oil Co.'s No. 1 Windle, SW cor. NW NE, Section 31-9-23w, was also abandoned at a total depth of 2,958 feet and same company's No. 2 Windle, SE cor. NW NE, Section 31-9-23w, at a total depth of 2,972 feet. These two wells were developed by Martin and others, when No. 1 Windle made 200 bbls. a day at a total depth of 2,895 feet, in April, 1923. Following the drilling of the discovery well Beckham County was the center of considerable oil and gas development for about a year. At the present time Beckham County is considered a gas district. During the past few years there has been considerable drilling for oil in the county, none of which has been productive.

In Beckham County there are four wildcat tests shut down at various depths and one new rotary rig rigging up. Considerable geological work has been under way in the county and some large blocks of acreage have been assembled which may be developed later.

State's Deepest Test

The deepest test in the State is still being cleaned out and bailing continues. Mid-Kansas Oil & Gas Co. and Ramsey Petroleum Co.'s No. 6 Preston-Culp, NW cor. NE, Section 6-5-9w, in the Cement Pool, Caddo County, was bailing with the fluid level standing at approximately 8,000 feet. The total depth of the test is 10,079 feet. The crew has been bringing out considerable mud-laden fluid, indicating the test may have been bridged. Bailing at the test is slow work owing to depth of the hole. While lowering the fluid content a showing of gas is noticed which is believed to be increasing slightly. It is necessary to replace the sand line almost every time the bailer is run to the bottom of the hole and new lines are installed when the line appears to be straining. The 6-inch casing was landed at 9,777 feet. The test has a showing of oil and gas from the bottom of the hole, which is still in the Pennsylvanian series.

Older Areas Continue Development

In the older producing areas in the State a slight increase in the activity is under way. New tests are being started and interest in leasing has improved. In the shallow areas the following operations were active. In Pittsburg County, J. E. Weible and others' No. 2 Maddox, SW cor. NE SW, Section 5-8-16, found a showing of gas at 580-600 feet, which was estimated at 500,000 feet a day. The deepest test in McIntosh County is Patterson and others' No. 1 Smith, SW cor. NW SE, Section 32-9-16, which was drilling at 5,835 feet. The test has been drilling in the Wilcox sand for the last 100 feet.

In LeFlore County, Choctaw Gas Co.'s No. 1 Fitzgerald, SE cor. NW, Section 1-6-22, was drilling at 1,750 feet. The pay horizon was expected around 2,000 feet. In the same county, Sooner Oil & Gas Co.'s No. 1 Jones, NE cor., Section 30-6-26, was drilling at 400 feet. The test is located in gas territory.

In Muskogee County, the following operations were active during the week: Robinson Oil Co. has moved in a machine for No. 2 Collins, NW cor. SE, Section 17-13-16, in the South Boynton Field. In the Haskell area, C. D. Bradley's No. 1 Jacobs, NE cor. SW, Section 17-15-17, was drilling at 800 feet. J. Aggas' No. 1 Roe, NE cor. SE NE, Section 28-16-15, was drilling at 1,670 feet.

In Okmulgee County, Penrod & Thompson's No. 4 Reynolds, CEL SW NW, Section 15-13-14, found the Field sand at 1,795-1,807 feet, with a showing of gas but no oil. It was drilling deeper at 1,915 feet. Norfork Oil Co.'s No. 1 Tiger, NW cor. NE NW, Section 19-16-14, north of Bald Hill, was drilling at 600 feet. D. M. Logan's No. 1 Wood, NW cor. SW NW, Section 32-15-13, in the Natura Field, was spudding.

Creek County

Comail Oil Co. has the rig up for No. 1-A Derrisaw, SW cor. NE SW, Section 6-17-7. Lee McClung and others' No. 2 Chapman, NE cor. SW SW, Section 5-16-11, has been abandoned at 2,217 feet. S. W. Anthony's No. 8 Whetstone, SE cor. NE SW, Section 3-16-12, has been completed for 500,000 feet of gas in sand at 697-706 feet.

Beckham County

Consolidated Gas Utilities Co.'s No. 1 Martin, NW cor. SW, Section 27-9-23w, is rigging up rotary tools.

Carter County

J. E. McCarty's No. 1 Norris, SE cor. NE NE, Section 23-2s-2w, has been abandoned at 245 feet.

Lincoln County

Barnsdall Oil Co. and others made location for No. 1 Taylor, C SW NW, Section 17-14-5.

Muskogee County

Ash Brothers' No. 1 Spaulding, NE cor. NW SE, Section 8-15-18, has been drilled deeper and completed for 10,500,000 feet of gas in sand at 1,570-88 feet.

Oklahoma County

T. B. Slick estate is erecting the rig for No. 9 Classen-Edwards, NW cor. SW SW, Section 3-11-3w, Oklahoma City Pool. The cellar has been dug for No. 3 Long, NW cor. SW SW SE, Section 15-11-3w. No. 4 Long, SW cor. SE, Section 15-11-3w, is a location. No. 1 Dodd, CWL SE SE SE, Section 22-11-3w, is a cellar.

Okmulgee County

D. M. Logan moved a machine in for No. 1 Wood, NW cor. SW NW, Section 32-15-13. Penrod & Thompson's No. 4 Shepard, NW cor. SW NW, Section 28-12-14, is an old well drilling deeper at 2,960 feet. D. M. Logan's No. 1-A J. Smith, SE cor. NW NW, Section 29-13-13, is dry and abandoned at 1,541 feet.

Pawnee County

Roy Bean and others made location for No. 1 Brown, SW cor. NW, Section 21-20-10.

Pittsburg County

J. E. Weible's No. 2 Mattox, SW cor. NE SW, Section 5-8-16, has been completed for 600,000 feet of gas in sand at 591-601 feet.

Pontotoc County

Stanolind Oil & Gas Co.'s No. 3 Roper, SE cor. NW, Section 32-5-5, has been completed for 200 bbls. in sand at 2,398-2,450 feet.

Seminole County

Gypsy Oil Co. made location for No. 7 Coker, NW cor. SW SW, Section 2-8-5, Carr City Pool. Amerada Petroleum Corp. has the rig up for No. 3 L. Tiger, NE cor. SW NE, Section 3-8-5. No. 4 L. Tiger, SE cor. NW SE, Section 3-8-5, is also a rig. The rig is up for No. 5 J. Tiger, NW cor. SE NW, Section 3-8-5. Gypsy Oil Co. has built the rig for No. 2 L. Tiger, NE cor. SW NW, Section 3-8-5. The Prairie Oil & Gas Co. is moving in the rig for No. 3 Hassman, NW cor. SE NE, Section 3-8-5. Pure Oil Co. has the rig on the ground for No. 2 Tiger, SE cor. NE SW, Section 3-8-5. Empire Oil & Refining Co. and others made location for No. 2 Fish "D," SW cor. SE SE, Section 19-7-8, Holdenville area.

Stephens County

Pace and others' No. 1-A Bristowe, NE cor. NW SE SE, Section 18-2s-7w, is drilling at 650 feet.

Wagoner County

J. P. Flanagan's No. 1 Brewer, NW cor. NE SE NE, Section 29-16-19, is spudding.

Seminole Production

The production from the Greater Seminole area for the week ending November 28, was approximately 163,500 bbls. The first 12 pools listed below comprise the Seminole area which averaged 134,000 bbls.:

Pool—	Bbls.
Little River	29,700
East Little River	7,945
Carr City	7,475
Maud	3,330
Mission	8,945
Bowlegs	20,675
Earlsboro	8,110
South Earlsboro	3,745
East Earlsboro	13,215
Seminole	24,685
East Seminole	1,115
Searight	5,060
Total	134,000
Allen	6,210
Arher	695
Wanette	3,645
Konawa	4,210
Sasakwa	1,990
St. Louis-Pearson	12,750
Total	163,500

The daily production from the Oklahoma City Field for the week ending November 28, was as follows:

Date—	Prod.	Wells
November 22	140,651	141
November 23	118,209	119
November 24	176,645	155
November 25	204,275	149
November 26	216,283	135
November 27	119,453	96
November 28	161,591	142

DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

	Month of Sept.		Nine mo. ending Sept.	
	1930	1931	1930	1931
Petroleum, crude, bbls.	1,960,887	2,296,457	17,433,605	19,625,909
Petroleum, crude, dollars	2,754,872	1,510,275	25,489,851	15,820,228
Total refined petroleum, bbls.	8,262,235	7,009,469	95,429,496	70,312,610
Total refined petroleum, dollars	29,788,492	17,077,436	351,357,451	183,311,301
Gasoline, naphtha, other light products, bbls.	3,912,452	3,074,226	49,290,972	34,198,188
Gasoline, naphtha, other light prod., dollars	16,483,969	7,176,682	202,722,853	87,877,775
Oils, illuminating, bbls.	1,349,070	1,056,602	13,000,687	9,420,835
Oils, illuminating, dollars	4,607,394	2,876,424	50,132,377	27,037,906
Gas and fuel, bbls.	2,323,703	2,217,218	25,382,597	20,574,864
Gas and fuel, dollars	2,228,671	1,840,761	26,040,281	18,884,124
Lubricating, bbls.	667,066	652,033	7,634,726	6,037,747
Lubricating, dollars	6,334,857	5,082,616	70,778,955	48,528,333
Other refined petroleum, bbls.	9,944	9,390	120,514	81,006
Other refined petroleum, dollars	133,601	100,773	1,682,985	983,163
Paraffin wax, bbls.	30,170,115	21,319,912	210,182,226	194,883,367
Paraffin wax, dollars	1,047,796	555,379	7,353,048	5,853,141

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Recording Absolute Pressure Gauge

which accurately records pressures above the absolute zero

OFTEN where a vacuum gauge is used the measurement really desired is not vacuum but absolute pressure.

Before the development of BRISTOL'S Recording Absolute Pressure Gauge, absolute pressure generally was computed by subtracting from the barometric pressure the vacuum which the gauge indicated. Two observations, barometric pressure and vacuum, were always needed before absolute pressure itself could be determined.

Now BRISTOL presents to industry a new Recording Absolute Pressure Gauge that gives an accurate continuous 24 hour record of absolute pressure, automatically compensated for barometer fluctuations.

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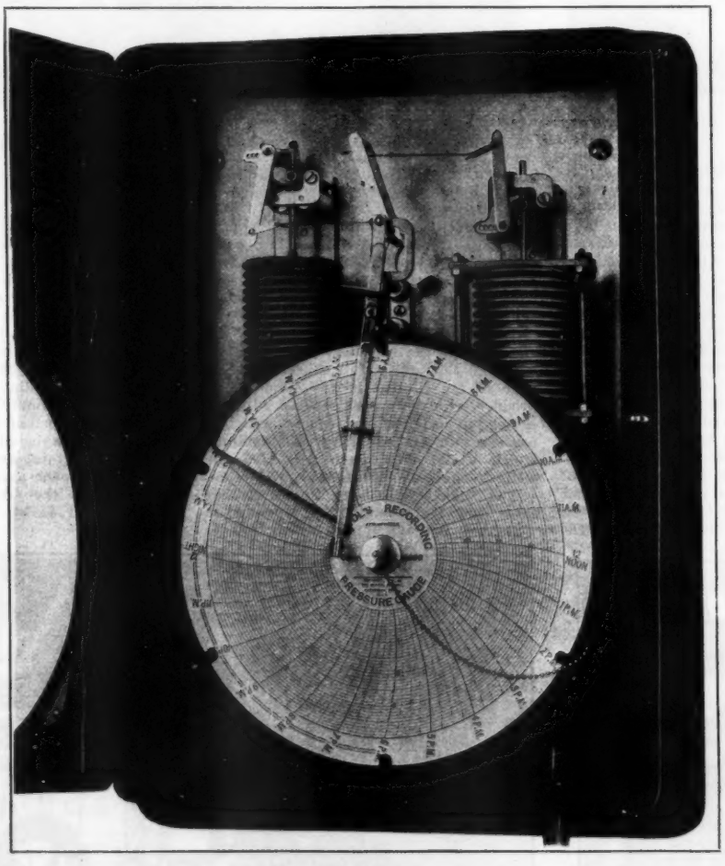
DIFFERENTIAL LINKAGE:
This is essentially a cross member, pivoted at the middle to a rigid extension of the pen arm, and connected at the ends to the two sensitive actuating elements. It swings freely. It correlates the motions of the two sensitive elements, and communicates to the recording pen arm the differential motion which is directly proportional to the absolute pressure.



TWO SENSITIVE ACTUATING ELEMENTS:
Both the barometer element which is hermetically sealed and the element which is connected to the vacuum are extremely sensitive to the slightest variations in pressure. These elements respond to fluctuations by expanding or contracting with a linear movement. The motions are transmitted by a suitable linkage to the pen arm.

PEN ARM AND CHART:
The chart is accurate throughout its entire range. Graduations are in tenths of an inch of mercury column. Readings can easily be estimated to hundredths.

CLOCK:
The spring motor clock rotates the chart. It synchronizes the record with the time of day. It provides a continuous record of absolute pressure, and also reveals the exact time and duration of any and all fluctuations.

Precision measurement of absolute pressure is of great importance to industry. In the manufacture of products ranging from electric lamps to perfume, in petroleum refineries, steam turbine plants, in food packaging processes, in fact wherever operations are carried out under a vacuum, the value of recording absolute pressure accurately cannot be overemphasized.

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INSTRUMENTS FOR INDICATING RECORDING CONTROLLING SINCE 1889

TREND OF PRODUCTION IN OKLAHOMA POOLS

(Continued from Page 15)

can be applicable to these 6,500-foot wells.

When the field was being developed some companies made it a regular practice to pour concrete foundations for rig fronts and engine blocks anticipating the time when pumping equipment would be installed. On many wells there are installed samson posts, walking beams, bandwheels, jack posts and other equipment, some with engines or motors for power, but a large proportion without any power machinery.

Gas is available for fuel and will be as long as this field is produced for it can be obtained in large quantities from the Pawhuska formation high up in the Pennsylvanian series and many operators are planning to use gas engines to produce their wells.

Because of the depth and heavy duty it has been found that it is not practical to move into this field old gas engines from other areas and therefore new engines rated at from 60 to 75 horsepower are being installed at many wells. These are of the twin cylinder type and are suitable for pulling and running long strings of tubing and will also furnish power for cleanout work as required.

There are, at last report, about 844 completed wells in the Oklahoma City Field and when it is completely drilled up so far as drilling zones will permit there will be about 900 wells. A good many have been plugged and pulled back to the upper gas sands. Others will be so treated, many because they will not pay if excessive salt water must be produced along with the oil.

The Wilcox sand zone is the best prospective area for future production from the Oklahoma City Field and it is estimated that about 4,800 acres is over this area and with about 1 well to 10 acres this will mean about 480 wells still to be equipped with pumping machinery.

The wells can be produced with gas lift, beam pumping, submerged centrifugal electric pump and swabbing and by controlled flow through both bottom hole chokes and top hole beans through tubing. The power can be oil or gas engine or electric motors and all types has been used in the field successfully.

Looking backward it is now realized that many hundreds of thousands of dollars could have been saved in equipment in that field if tubing had been run early in the life of the wells. Control heads or christmas trees for the 7-inch casing have cost up to $18,000 per well and have had to be of the very best type. Even then some wells have got out of control and many replacements have been necessary after flowing heavy sand wells for only a short time, so replacement expenses have been relatively high.

On the other hand if the tubing had been run when the well was fresh the christmas tree equipment could have been reduced to around $2,000 per well, or a saving of about $16,000 per well which for 850 wells would have meant the investment of $13,600,000 less money.

It will be pointed out that the well potentials would not have been as large through tubing as it has been through casing but what difference would it have made where the potential has always been reduced by about 90 per cent or more in figuring allowables. In other words, if all wells had been completed with tubing they would all have had equal potential ratings upon flow through the smaller strings of pipe but the relative flow per well would have been unchanged. As the field has never been allowed to flow at its full capacity at any time all the oil that it was permitted to produce could have been secured with the saving in original investment and the conservation of gas energy and volume which would later have permitted the wells to make more ultimate production.

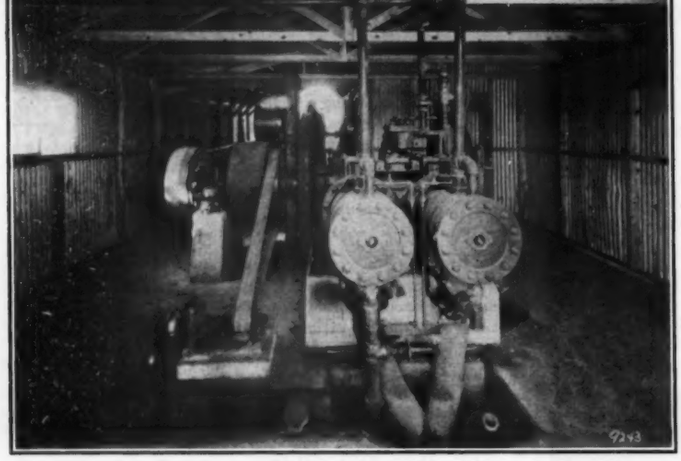
The tubing will have to be run at some time if the wells are to continue production so the deferred investment there would not enter into the above calculation on well equipment.

Ultimate Recovery

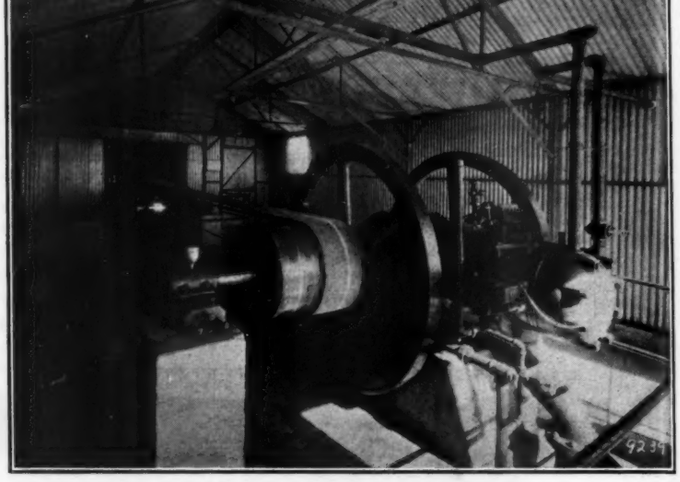
To estimate ultimate recovery from the Oklahoma City Field is a very difficult task because there are many economical conditions entering into the problem of estimating how much oil can be taken out of a particular well. On the whole it is difficult to see how the Oklahoma City Field will ever pay back in oil the money invested in it. Many leases have paid out long ago, others will pay out and show profit but there will be a lot of wells that will show a loss when they are finally abandoned.

It is therefore the problem for the production man with properties in Oklahoma City Field to decide what can best be done with his particular wells to secure returns of the greatest possible amount of the original investment and in doing so he will give consideration to any reasonable production method and equipment of any kind that gives hope of securing the ultimate amount of oil at the minimum cost of production.

One estimate based upon capital investment and total expected recovery of oil shows that the average cost of a barrel of oil in the Oklahoma City Pool will be about $1.30. This is above the



Seventy horsepower twin cylinder gas engine installed on Skelly Oil Co. property in Oklahoma City Field for pumping.



Sixty horsepower roller bearing gas engine on Oklahoma City Field pumping well.

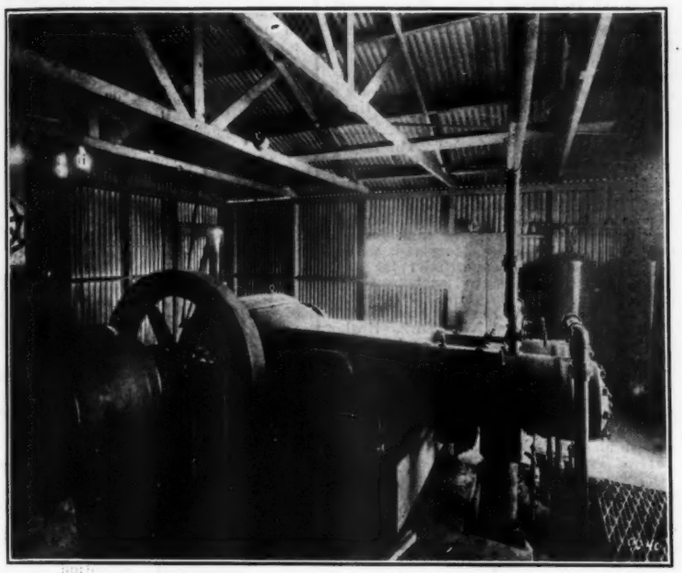
Clutch and chain driven bullwheel outfit installed on Oklahoma City well ready for pumping conditions.

Single cylinder 50 horsepower gas engine on pumping well of British American Oil Co., Oklahoma City Field.

average price that has been paid for oil in that field since it was discovered three years ago and if the total returns are to be upon that basis the oil must bring a better price than paid for it in the past.

The above estimate includes production costs, that is, lifting costs upon the remaining oil and indicates that little consideration has been given to this side of the picture in the purchase of oil from that deep seated sand area.

It is therefore quite essential that all producers in the Oklahoma City Field give careful attention to the cost of securing the remaining oil and will need the best of the modern equipment available for that purpose. The manufacturer with such equipment for sale will do well to canvass every prospect carefully for he will find an interested producer and if he has the right kind of apparatus should be able to negotiate sales and now is the time for such sales effort to be put into practice.



Twin cylinder 70 horsepower gas engine at Anderson-Prichard Oil Co. property in Oklahoma City Field on pumping well in north end.

Seminole Takes Potential

Potentials have been taken in the greater Seminole area during the past two weeks which indicate that upon the 50 per cent proration basis allowed that district about 150,000 bbls. of oil can be produced daily. As reported November 28 by Ray M. Collins, state umpire, the gauging of the individual producers was almost completed and indicated that the field will have a total potential of about 300,000 bbls.

A study of the well gauges in the various pools, however, reveals that while some wells are making a higher potential flow during this last test period than estimated upon the decline curve basis, it seems obvious in a great many instances that this higher rate of flow is due primarily to the water drive that is now under way in all pools in the field and where underground water levels are converging toward the upper portion of the structure the oil is being forced into the wells at higher rate of flow than normally.

There has been water in all pools in the Seminole Field for many years, and in some of them all wells have made some water for a long time, while in other pools only part of the wells made water. Taken as a whole at least 80 per cent of all the wells in the greater Seminole area will now make water and the amount of water produced has been gradually increasing in some portions of the pool until the economic productive life of many wells is now very short.

During the activity in drilling in the East Texas Field many companies checked their Seminole wells and where they considered their productive life as short they pulled the strings of 6⅝-inch casing and shipped it to East Texas for use there. Many wells in all pools in the Seminole area are now cased only with the 8¼-inch and larger strings of casing which clearly indicates that the operators do not anticipate a much longer life for those wells.

Where wells during the period of taking the last potential showed increased activity it seems quite safe to assume, after studying water contour maps, that this increase has been due to the narrowing of the space between contour lines of water movement. This indicates that the oil is being flushed out ahead of this water drive and if the wells are produced with proper care as to the rate of securing the oil a lot more crude will be recovered but the time period will be lengthened.

During the period of military shutdown some wells in the Seminole area went entirely to water and had to be abandoned. This all indicates that water is playing an important part in the production in Seminole as well as in all other flush and semiflush fields.

CANADIAN FIELDS

(Continued from Page 43)

150,000 feet of gas to produce a barrel of naphtha was unofficially suggested.

Since last May the provincial government has been gradually developing a conservation policy. The first step was to restrict the field to 40 per cent of normal open flow. Later, a maximum open flow of 100,000,000 feet a day for the entire field, prorated among the various wells, was imposed. With a view to applying this restriction in such a way as to impose the least hardship on the operating companies, the subcommittee on conservation, headed by Frank P. Fisher, was asked to work out an operating policy. The committee suggested unit operation of the field, its project involving production of naphtha from a few selected wells with the most favorable naphtha-gas ratio and participation of independent operators in natural gas sales, which under existing agreements are a monopoly of Imperial subsidiaries. The latter policy involved extra payment by the Canadian Western Natural Gas Co., to be in part compensated by a 1-cent increase in the gas rate for Calgary and other markets.

The government has since been negotiating with various interests in regard to the unitization agreement as finally revised by Mr. Fisher and his associates, but little progress appears to have been made.

Drilling in Parco Well

On the Twin River structure, Southern Alberta, Parco Oil Co.'s No. 1, LSD 16, Section 34-1-20w4, is reported drilling in, and testing production. While cement was setting, oil is reported to have gradually risen 1,500 feet in the hole; and for a while after the strike, bailing at the rate of 150 bbls. a day failed to lower the column of oil.

The test, drilled jointly by Parco Oil Co. and Nordon Corp. on acreage of the latter company, was the first test drilled by either company in the Alberta fields. The drill entered the Blairmore at 3,060 feet, the 13⅜-inch casing being cemented at 2,675 feet. A slight show of water was encountered in the Sunburst sand between 3,670 and 3,675 feet, but no gas, oil or water in the Ellis sandstone. The 10¾-inch casing was cemented at 3,544 feet to protect the hole. The drill entered the Madison lime at 3,858 feet, encountering gas estimated at 500,000 feet a day with a strong petroleum odor. The first show of oil was met 12 feet in the lime at 3,870 feet, and 5 full bailers were brought up, when the hole showed signs of caving and bailing was discontinued. Drilling was continued to 3,880 feet after which 8⅝-inch casing was cemented at 3,855 feet to shut off caving and prevent re-intrusion of the water from the Sunburst. The oil is 31.5 degrees crude, a blackish but lively product with apparently an asphalt base but fairly high gasoline content.

Hudson's Bay Test

Next in interest to the Parco test is Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, which also has a strong show of crude at the Ellis-Madison contact. The test started in the Basal Edmonton formation and is now standing in the top of the Madison lime at 4,926 feet. It entered the Blairmore-Kootenay at 1,495 feet and the Ellis at 4,790 feet, 10¾-inch casing being set at 4,222 feet. The test entered the Madison lime at 4,914 feet and was drilled 12 feet into the lime. As in the Twin River well, a slightly salt and sulphur water, estimated 30 bbls. a day, was met in the Sunburst sand. The crude show was actually struck in the top of the lime at 4,920 feet, and tests around 33 gravity. The 8⅝-inch casing was cemented just below 4,917 feet. In drilling out cement the tools stuck and a fishing job resulted, which has just been completed. The last of the cement is now being drilled out preparatory to a production test. The well had a fair show of crude in the Benton horizon around 3,770 feet.

Imperial Drilling

On the Lethbridge structure, Texas-Imperial's No. 1 wildcat, LSD 14, Section 22-8-22w4, is reported at 4,319 feet and running 8⅝-inch casing. This test is in line with the Twin River and Keho Lake wells, but is apparently somewhat deeper, having got the Blairmore-Kootenay formation at 3,700 feet.

In South Turner Valley, Sterling-Pacific Oil Co.'s No. 2, the only Imperial test now drilling in the Turner Valley Field, is again drilling after cementing at 5,217 feet.

In the South Turner Valley, Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, is deepening below 5,100 feet and swabbing around 100 bbls. a day of 39.8 gravity crude. Production comes from the Home sands. The drill entered this horizon, the first show of oil with about 500,000 feet of gas was met at 4,955 feet, and 8⅝-inch casing set at 4,960 feet. If the Dalhousie sand is productive, the test may not be carried to the lime, at least for the time being.

In the same general area, Miracle Oils' No. 3, LSD 11, Section 4-19-2w5, is drilling below 4,950 feet, and apparently in the lower Blairmore. The rotary outfit at No. 3 will be used later to complete Miracle's No. 2, LSD 16, Section 5-19-2w5, which is standing in the Fernie shales at 5,558 feet. The test was carried to 5,400 feet by Union Drilling Co. under contract, but will be completed by Miracle Oils. It entered the Blairmore at 2,260 feet and got an oil show at 2,313 feet and gas between 2,792 and 2,795 feet. The Dalhousie sand was reached at 4,540 feet and the Fernie shale at 4,740 feet, with a recurrence of the same formation at 5,350 feet, indicating a deep drilling proposition.

In Central Turner Valley, McLeod Oil Co.'s No. 4, LSD 16, Section 1-20-3w5, is reported drilling below 5,400 feet with a depth in the lime of 1,680 feet. The 8¼-inch casing is cemented in the top of the lime at 3,740 feet, and the well has now an estimated wet gas flow of 5,500,000 feet a day. The test has got deeper horizons in the lime than have been attained by any other Turner Valley well, and a couple of years ago found a second producing horizon in that formation. The hole is in good shape for a thorough test of the lower lime. In the same LSD, Regent Oil Co.'s No. 3, being completed by W. E. McLeod and Hugh Walsh, is reported drilling below 3,600 feet, with 10¾-inch casing at 2,450 feet and shows of oil and gas encountered in the Home sand below 3,360 feet.

Dome Oils' No. 2, LSD 16, Section 36-19-3w5, is reported 225 feet in the lime at 5,390 feet and preparing for a shot.

North Turner Valley

In the North Turner Valley, United Oils' No. 4, LSD 2, Section 24-20-3w5, is at 6,662 feet and running a collar buster to pull 6⅝-inch casing. This test has apparently established a new depth record for the Dominion, the record having previously been held by British Dominion Oil & Development Corp.'s No. 1 in Central Turner Valley, abandoned some years ago at a reported depth of 6,660 feet without reaching the lime. United's No. 4 entered the Home sand at 4,830 feet and the Dalhousie at 5,480 feet and cemented 6⅝-inch casing in the lime at 5,910 feet. At 6,600 feet the drill passed out of the lime into a shale formation thought to be a recurrence of the overlying Benton. No commercial production of gas or naphtha was reported in the lime, but when casing has been pulled it is planned to shoot a good show of light crude encountered in the Dalhousie sand. The sand will be shot between 5,555 feet and 5,575 feet and possibly between 5,495 and 5,515 feet. This is the only test that has recently been active in the North Turner Valley area.

Tests in the Foothills

In the Monarch area, west of Olds, Cartier-Majestic's No. 1, LSD 3, Section 36-31-7w5, is reported drilling below 710 feet, and running three tours. Some slight gas shows have been encountered in the Benton shales.

In the Moose Mountain area, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is at 3,340 feet, after entering the Kootenay at 3,150 feet. The 10¾-inch casing was cemented at 3,190 feet to shut off water from 3,140 feet; but a further small water flow was met at 3,245 feet and casing is again being run and cemented. The test is thought to be close to the Home sand.

Graystone Petroleum's No. 2 Signal Hill, LSD 9, Section 34-23-5w5, is reported preparing to drill with 6-inch tools to the Dalhousie sand. The hole is now down 4,224 feet and geologists report the horizon in which 45 gravity crude was met at 4,168 feet was not the Dalhousie. The test may ultimately be carried to the lime.

New Show at Aldersyde

On the High River-Aldersyde structure, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is reported drilling below 5,225 feet and running single tour, with 6⅝-inch casing set at 3,945 feet. A show of gas was met at 4,710 feet, and a slight oil show at 5,057 feet, with considerable increase in the deeper drilling.

Border Fields

In the Milk River area, Commonwealth Petroleums' No. 1, LSD 8, Section 9-3-15w4, is at 5,067 feet and drilling slowly in a hard lime which is expected to continue to around 5,080 feet. A small gas show was met in the Madison at 3,580 feet, and water at 4,450 feet, 4,780 feet and 4,850 feet. The drill is now working with considerable water in the hole, the bailings showing strong traces of oil.

On the Canadian end of the international Reserve Dome east of Coutts, Mayland Southern's No. 1, LSD 13, Section 4-1-9w4, is drilling at 2,660 feet after encountering additional gas, estimated at 4,000,000 feet a day, in the Sunburst

(Continued on Page 81)

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One 40-inch steel reel, capacity 10,000 feet ⅝-inch line; one steel reel, capacity 5,000 feet; both equipped for truck mounting and hub winch drive. Two Braden hub winches. 40,000 feet ⅝-inch, 2 conductor, steel armored, moisture proof, electrical cable. All equipment new. Substantial discount on construction cost. Address Box E-846, The Oil and Gas Journal, Tulsa, Okla.

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Chicago Tank Car Quotations Reduced

Gasoline Prices Continue Lower Trend and Reductions in Several Grades of Fuel Oil Effective

By Robert C. Conine
Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, Nov. 30.—Gasoline tank car prices in Chicago district continued downward last week and Monday these markets were taking a breathing spell at new low levels on the latest debacle while the Oil States Advisory Committee was meeting in Tulsa to urge a 10 per cent reduction in crude oil production in Texas, Oklahoma and Kansas. New price quotations were also effective in the list of heavier fuel oils and the gas oils. These prices are slightly lower and coming at this time when the movement of these materials is taking on a brisker appearance, the interpretation to be made is that the markets preceding the present cold weather have been more or less nominal because distributors have accumulated stocks as two months of their selling season go by without activity. These sellers have a considerably curtailed business season working against them and the current quotations may be taken as the actual tank car price starting point with advances expected as buying cuts into storage. Straw distillate is being shaded under the quoted prices. This is 600 endpoint material of under 175 flashpoint. Some material of 165 flashpoint is as low as 2 cents, suffering from competition with untreated kerosene. Most of the gas oil in distributors' storage was bought at from 1 to 1¼ cent, and it is understood that these sellers are getting tired of holding the material.

Refiners Key to Situation

In Chicago oil trade circles the reactionary condition of the gasoline tank car markets, and the softness that has come into the heavier fuel oil lists, is laid at the door of the refiners who, it is contended, have failed to adjust their operations to conform with the seasonal drop in demand for their principal product. Figures released last week indicated a 620,000-bbl. increase of gasoline stocks in storage, although there was a reduction of 81,400 bbls. daily in crude oil runs to stills. Gas oil and fuel oil stocks in storage showed an increase of 137,000 bbls.

Refiners Out as Buyers

Inter-refinery buying is apparently a thing of the past, and according to reliable information five of the smaller manufacturers who have been shipping material into the district have notified their customers that they are shutting down their plants because they cannot get a good price for their gasoline. It is to be remembered that the gasoline available in Chicago district was bought at comparatively high prices and resellers are reluctant to let the material go at the current low levels. This fact is serving to bolster somewhat the markets during the first setback based on demand, the erstwhile saving factor. The offerings to the refiners are considered too high as a purely commercial transaction now that the refinery buyers appear to have lost their desire to prolong the situation in which they help out a refiner in difficulties by taking gasoline off his hands only to have the refiner thus aided run up his stocks anew to return to his former bad position.

Ready for Showdown

The refiners who have figured prominently as buyers seem to hold the view expressed by one of their number: "We are sick and tired of saving some refiner's skin just to have him turn around and start his plant going full blast with the expectation of moving material in a market we have cleaned up of distress gasoline at prices below the posted quotations and still make a profit. We have refinery costs that go on whether we make the gasoline ourselves or buy it, so when all the facts are considered it is to our advantage to rely upon our own operations for our material. At first we bought the material willingly hoping that the industry would be placed in a better position, and this would naturally make things better for us. Later we began to mistrust these refiners who were always in trouble, but after considerable discussion and importunities from various sources, we resumed buying. It's the same old story. These troubled refiners have failed completely to do their part and as far as our company is concerned they can go on the rocks, where they will no longer work against the best interest of the industry."

Gasoline Tank Car Markets

At this time the gasoline tank car prices are lower than last week by from an eighth of a cent to half a cent, and tomorrow's prices are practically unpredictable. There are still many who have some faith left in the refiners and these are expecting a considerable reduction in crude oil runs to stills. Others are expecting the exit of a number of smaller refiners who have been supplying a large volume of the lowest price gasoline and fuel oils. All of the marketers are intensely interested in the meeting today of the Oil States Advisory Committee in Tulsa in connection with the proposed 10 per cent crude oil production cut in the three most important oil states. But a new fear appears to be edging into all these considerations. This is the feeling that crude oil markets will weaken and that a general tank wagon and service station cut will be announced.

It is felt that a critical moment is at hand and that this week will see either the breakdown of the open markets or their sudden resurrection at the hands of the refiners themselves. Most of the great quantities of gasoline available are in the storage tanks of the manufacturers, as distributors have been extremely hesitant to build up their own stocks in a softening market. The distributors and jobbers have become fatalistically certain that gasoline tank car prices have an unfailing way of advancing once every few months and after two weeks of fair markets receding again to gain strength for the next periodic betterment. The markets are on the decline, they say, so why buy when the bottom is still a couple of cents away?

Octane Specifications Bring Price

While there is little or no attention paid to published prices on certain arbitrary brackets of octane specifications, due principally to the fact that the low of the range and the several octane points succeeding do not distinguish the gasoline in one bracket from that in another, it is a fact that gasoline above 62 octane number and up to 70 octane number is not available in any considerable quantities and commands prices ranging from half a cent to 1 cent above the ordinary U. S. Motor of 52 octane number.

Distributors and brokers who are doing the larger volume of their business with trackage station operators are looking about for octane material at prices under current quotations and are having no luck. It seems that most of this gasoline is already accounted for and that even the gasoline of 60 octane number, a straightrun product from exceptional crude, is sold out for some time ahead. One refiner is said to be considerably behind in his shipments, although this cannot be said for the refiners offering gasoline of 8 octane numbers less. Gasoline tank car prices quoted Monday were as follows: 58-60 gravity, U. S. Motor gasoline, 3¾ to 3⅞ cents, a drop of half a cent; 60-62 gravity, 400 endpoint gasoline, 4 to 4¼ cents, a reduction of three-eighths cent; 64-66 gravity, 375 endpoint gasoline, 4⅜ to 4⅝ cents, a drop of a quarter of a cent; 68-70 gravity, 360 endpoint gasoline, 4⅞ to 5⅛ cents, a reduction of an eighth of a cent. The 50-52 gravity, 450 endpoint naphtha dropped five-eighths of a cent to a range of 3⅜ and 3½ cents. The 64-66 gravity, 437 endpoint blended gasoline lost a quarter of a cent to 3¾ cents. The greatest declines were registered in the higher endpoint materials. The high tests are holding fairly well and it is felt that there is a real demand arising for these materials.

Eastern Gasoline Still Factor

There is still considerable routing of Pennsylvania gasoline by Chicago brokers and distributors. Saturday one Chicago broker laid down three cars of Pennsylvania gasoline at Detroit at a Group 3 price of 3⅛ cents, or 5.9 cents delivered, and made a profit of three-eighths cent. Mid-Continent refiners are said to be exerting the principal bearish influence on the gasoline markets where they are seeking to move material against gasoline bought by distributors at 4 cents and above. The low of 3¾ cents comes from these refiners.

Trackage Station Operators

Service station prices, in themselves, are not being cut in Chicago in the way that marked the summer competition, but price cutters are resorting to a substitute inducement to trade. The trackage stations offer 7 gallons of gasoline for $1.05, that is, the regulation price of 15 cents a gallon. This gasoline is alleged to be high in antiknock quality and with gravities from 62 to 70°. Each purchaser of 7 gallons of this gasoline receives a present of "six beautifully etched water glasses or pitcher," or "a beautiful cigarette lighter," or a flashlight, chinaware, or any of some 30 or more different gifts. To make a short story shorter, a tour was made last week in which 45 cut price stations were visited. The gas tank was empty as it stood at the pump at each of these places and 7 gallons were bought and the trinket received. There was bitter disillusionment in that trip. The beautiful glassware turned out to be molded, with rough edges and heavy seams, ugly; the cigarette lighter would shame Maxwell Street hawkers; the flashlight was a piece of tin wrapped around a battery; the dolls were made of papier mache, and the utility of most of the remaining premiums is still to be discovered, although an alleged incense bowl made in Japan may serve as an ash tray until a better use is found. But that is not the worst of it. At 35 out of the 45 cut price stations the operator neglected to put in all of the gasoline paid for. At these places the measure was short from 1 pint to 3 quarts in the 7 gallons. The witnesses vouching for these facts are thoroughly reliable, and the exhibits are available to any who care to see.

It is understood that a reduction of from 5 to 12 per cent in the price of automobile tires is contemplated by the major rubber companies. Similar reductions, it is said, may be expected on the part of chain store sellers such as Sears-Roebuck & Co. Such a reduction may promote sales, but with the approach of the spring dating season, when the largest volume of business is experienced, the move may affect the profits of filling station operators handling that accessory, especially if there is another outbreak of price cutting in tires.

Another discouraging note was struck last week when figures released by the Federal Reserve Bank of Chicago showed that the output of automobiles in October totaled 57,764 units, or 47 per cent less than in the preceding month and about half of the production for October of last year. This sets a new record low for any month since July of 1921. Truck production was off 31 per cent. It is quite possible that so much has been said about the forthcoming 193[illegible] models that the public at large has become captivated by promised "higher compression," greater power and mileage, free-wheeling, lower prices, and the like, that buying has been postponed and the manufacturers have been wisely curtailing operations with that fact in mind.

Kerosene Tank Car Markets

In a rather quiet market kerosene prices have remained steady without particular tendency either upward or downward. With the advances expected in the heavier distillates as the cold weather buying begins in earnest these markets may move up. Monday the 41-42 water white kerosene was quoted at 2⅛ to 2¼ cents, and the 42-44 water white material was quoted at 2¼ to 2½ cents. The kerosene tank wagon markets throughout the territory have shown unexpected strength although at the levels existing when the tank car markets were in a less favorable position.

Some of the refiners are urging a move which will have the effect of eliminating many of the ills arising from gasoline tax exemptions to farmers, and at the same time will serve to reopen an outlet for kerosene. The proposition is to levy a tax on kerosene and gasoline alike when they are used in farm service. The farmer pays the tax and receives a certificate of sale which will form the basis of his petition for refund of tax on the material used in tractors and stationary engines, as well as in lamps, incubators, etc. The farmer lists the equipment in which the fuel was used and describes the work done.

New Michigan Tax Law

A law requiring certain gasoline distributors to give bond to the State guaranteeing payment of the 3-cent tax on gasoline will become effective in Michigan, January 1, 1932. The maximum bond required is $25,000. It is pointed out that the new law will tend to weed out those distributors who are considered irresponsibles, while any suspected of tax evasion will find it difficult if not impossible to obtain bonds. Until the gasoline tax evasion problem is well out of the way it is perhaps unwise to discuss a tax on kerosene, although it is an important argument that kerosene and naphtha which finally find their way into the gasoline tank through blending with natural gasoline would undergo closer supervision.

Fuel Oils and Gas Oils

In these markets the only product which has held its ground is the 28-30 gravity zero fuel oil. The other products have suffered slight price recessions, due to an influx of material in the markets or to a settling down of prices to a working basis at the belated appearance of the buying season. The 18-22 fuel oil moved down from a range of 32½ to 37½ cents to 27½ and 32½ cents; the 22-26 fuel oil dropped 2½ cents making the current quotations 35 and 40 cents; the 28-30 zero fuel oil remained stationary at 52½ to 57½ cents, with more of this material being sought than offered. Current gas oil prices Monday were: 32-36 industrial gas oil, 1⅜ to 1⅝ cents; 32-36 zero gas oil, 1⅝ to 1⅞ cents; and 38-40 straw distillate, 1⅞ to 2 cents.

Eastern Oil Circles More Optimistic

Inventories in Better Shape as to Volume and Values. Dealers Demanding Minimum of 65 Octane Number

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Nov. 30.—Weather conditions played a prominent part in developments in East Coast refined products markets during the past week, warm and balmy weather during the early part of the week stimulating gasoline business and reacting against volume in kerosene and fuel and furnace oils, while just the reverse was true during the closing half of the period. Pricewise, there were no important developments during the week, although gasolines with low octane number were somewhat inclined to softness, with buyers showing more insistence on deliveries of motor fuel testing 65 octane number or better when purchasing U. S. Motor in the tank car market. The problem of stabilization of octane number for deliveries falling under the U. S. Motor classification is one that requires early decision, the trade here believes.

The two cargoes of Rumanian gasoline reported shipped to East Coast United States ports, it is now reported, will be transshipped on arrival here to Detroit, via tank car. Each cargo is approximately 7,500 tons, one being destined for Philadelphia and the other for Baltimore. Both cargoes are consigned to the Detroit independent who recently brought in a large cargo of Rumanian gasoline which was shipped to Detroit via Montreal. The present plan of shipping by tanker to East Coast ports, and thence transshipping to Detroit via tank car is due to the closing of navigation in Canadian waterways over which the previous shipments were moved, it is reported here.

With the year nearing a close, indications are that the rank and file of the industry will close 1931 in much better position than appeared possible, and that the industry as a whole will go into the new year in fairly favorable statistical position. Inventories are now in good shape, both as to volume and values, with replacement costs in many instances higher than costs. The outlook for the crude oil division of the market, which, in the final analysis is the bellwether of the refined products "flock" is more constructive than for a long time past, and the general sentiment in trade circles is one of optimism.

Refinery Gasoline

The trade is showing an increasing tendency to draw a finer line between gasoline testing under 65 octane number and grades testing over that rating, and this trend is steadily becoming more marked as buyers become more "octane conscious."

While all refiners have not adopted a definite policy with respect to this question, a number of sellers are delivering gasoline of 65 octane number minimum on their sales of U. S. Motor in the tank car market, and distributors are showing a tendency to demand this minimum in such transactions.

The posted price for 65 octane number or better U. S. Motor in tank car lots continues unchanged at 6¼ to 6½ cents per gallon, f.o.b. refinery terminals, while the market for gasoline under this minimum is a little softer, ranging from 5¾ to 6 cents per gallon, one-quarter cent under previous quotations.

Demand for all gasolines showed some decline at the week-end, cold and stormy weather curtailing consumption considerably, in marked contrast to the heavy volume during the early half of the week, when unseasonably warm weather kept refineries busy getting out tank car shipments to their distributors.

The colder weather has again centered interest on the premium grades of motor fuel, and the higher antiknock gasoline is attaining increasing importance in its percentage of total sales.

Tank Wagon Gasoline

The metropolitan territory has again slipped badly in the matter of resale price maintenance, and price competition is again coming strongly to the fore. With the posted retail price 16.3 cents per gallon at filling stations, leading brands of motor fuel are being sold in numberous instances at 8 and 9 gallons for $1, including tax, and the price cutting seems to be spreading, rather than diminishing. The current unfavorable situation appears due largely to intense competition among independent station operators, although the stations of some of the larger integrated companies show little hesitancy in meeting this type of competition wherever it may develop. Organizations of independent retailers are endeavoring to restore more stable conditions to the retail markets, with some prospect of success.

The only change reported in local territory during the week was an advance of 1 cent per gallon in tank wagon and service station prices in the Syracuse, N. Y., territory, named by Standard Oil Co. of New York on November 25. Other marketers followed in the advance.

Gasoline prices were also raised 1 cent per gallon in the Philadelphia territory during the week. A similar advance, made a fortnight ago, was annulled about 10 days ago, following the failure of one leading interest to follow the increase. The present advance, it is indicated, will become general.

Retail gasoline markets in South Atlantic territory appear to be showing considerably more firmness than is true of New York and some of the other larger centers of population, and improvement in local markets has by no means kept pace with that shown in other parts of East Coast territory since the recent strengthening in refinery markets.

Lubs

Cylinder oils were easier in the local market during the week, reflecting the recent softening of the cylinder oil market at the refineries, but aside from bright stocks, which were off 2 cents per gallon, no actual downward revisions in spot quotations were noticed. The market undertone was easy, however, and shading of quoted prices would probably have been possible on a firm bid. Buyers were not inclined to extend the market any buying support, however, and business was along extremely curtailed lines throughout the period.

Red and pale oils were again without price change last week, but refiners reported that tank car movement was fully up to normal, and it was expected that some improvement in gallonage would be witnessed during the closing weeks of the year as consuming manufacturers gradually extend their plant operations.

The retail lub oil market is reflecting recent unsettlement in the position of the refinery market, and many sellers are featuring "100 per cent Pennsylvania" lubricating oil at prices as low as 58 cents per gallon in five-gallon tins, this comparing with an average posted price of $1.25 per gallon for leading brands in 1-gallon containers.

Heating Oils

Continued warm weather during the early part of the week made for restricted movement of domestic heating oils, and gallonage had slumped off a little. Refiners continue to quote 3½ cents per gallon for domestic heating oil, minimum 32 degrees gravity, in tank car lots, but it is expected that the market will immediately respond to increased consumption with the first sustained cold weather of the winter season.

Retail prices for domestic heating oils showed no change during the week, tank wagon deliveries falling off in sympathy with the curtailed consumption incidental to unseasonably warm weather throughout the greater part of the territory. Demand showed a sharp recovery with the colder weather over the week-end, however.

Fuel Oil

While the bunker oil market has not reflected recent crude oil price advances, a steadier undertone is discernible in the market for the heavy oils, and any lightening of Russian and Rumanian competition in European ports, it is expected, will be the signal for an upturn in posted prices for bunker "C" oil at American East Coast ports.

There has been a well sustained movement of bunker oil against contract to the marine trade, and refiners continue to adhere to their posted price of 70 cents per barrel, bulk, f.o.b. marine terminals, the lowest price on record in this area.

Another large oil burner was added to the fleet of vessels plying out of New York this week with the arrival from England of the new "Monarch of Bermuda," 27,700-ton flagship of the Furness-Bermuda Line. The new boat, an $8,000,000 vessel, is an oil-burner, and is fueled under contract by Standard Oil Co. of New Jersey. The steam generating system on the "Monarch of Bermuda" consists of eight oil-burning Babcock & Wilcox high pressure marine type boilers, fitted with heaters and tubular pre-air heaters arranged to work under the closed stokehold system of forced draught. Steam is generated at a pressure of 400 pounds per square inch and superheated to 650-675° F. The total generating surface is about 42,260 square feet.

Diesel Oil

Contract deliveries of Diesel oil are holding up fairly well, and refiners continue to quote the market unchanged at $1.30 per barrel, in bulk, at refinery terminals, with the usual differential for barging alongside within harbor limits.

Production of Diesel oil is being curtailed in line with the seasonal slackening in refinery operations in the East Coast area, and the market, from a statistical position, is steadily firming up.

Kerosene

Unseasonal weather has slowed down movement of kerosene somewhat during the first half of the week, and the market presented a rather quiet appearance throughout the period. Refiners continued to quote 41-43 water white at 5½ cents per gallon in tank car lots, f.o.b. refineries, and it appeared that leading sellers were firm at that level.

There was no change in the tank wagon kerosene situation during the week. Gallonage had eased off somewhat, due to slackened consumption, but marketers reported that sales were still running into fairly large totals as many consumers were using kerosene heaters during the mild weather in preference to their coal furnaces.

Gas Oil

Spot movement of gas oil was holding up well throughout the week and the market held steady at 4 cents per gallon in tank car lots at refinery terminals. Gas manufacturing companies continued to draw on stocks in substantial quantities, and jobbers were stocking gas oil in a large way for furnace oil distribution later on in the season.

Refiners are making efforts to further curtail their surplus holdings of gas oil, and it is expected that stocks at East Coast refineries will be materially cut down by spring.

Paraffin Wax

Hand-to-mouth trading again featured the paraffin wax market during the week, and spot quotations were without change. Refiners were endeavoring to hold the market steady at quoted levels, but buyers were holding off in an endeavor to force lower prices.

There has been some improvement in export inquiry for crude scale but foreign buying interest in the fully refined grades has continued of but small amount and foreign buyers as well appear to be waiting for more favorable price levels.

Export Market

Continued dullness was reported in the Gulf export market during the week, with posted prices unchanged on both gasoline and kerosene. No cargoes were reported fixed during the period, and no cargo inquiries were in the market.

A cargo of between 9,000 and 10,000 tons of California gasoline was reported sold during the week for shipment to Hamburg, December-January loading, but no details as to price, etc., were available.

There is some interest shown in the market for Mexican heavy oil for contract delivery over the coming year, but no contracts were reported closed during the week. With Mexican operations and production still on the decline, sellers in that country are showing rather strong views on the market outlook for 1932.

California Oil Receipts

There were no receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended November 21, this being due to the landslides which closed the Panama Canal during the previous week, preventing the arrival of tankers moving refined products eastward.

Shipments of California refined products eastward during the week included the following:

For New York—72,000 bbls. of gasoline and 3,000 bbls. of lubricating oil on the tanker Solanax; 97,200 bbls. of gasoline on the Standard Arrow.

For Seawaren, N. J.—80,000 bbls. of gasoline on the tanker Beaconstar.

For Philadelphia—114,000 bbls. of gasoline on the Northern Sun and 113,700 bbls. of gasoline on the Western Sun.

Petroleum Exports

There was some improvement in export movement of refined products locally during the week, the increases being due largely to contract deliveries to foreign marketing subsidiaries of the large integrated companies.

The following table shows principal exports of refined petroleum products from the port of New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Nov. 14	Nov. 7	Oct. 31
Gasoline	448,000	180,000	65,000
Naphtha	507,000	352,000	310,000
Kerosene	353,000	32,000	33,000
Fuel oil	395,000	2,000	8,000
Lub. oil	1,390,000	678,000	785,000
Petroleum, ref'd.	3,360,000	595,000	1,360,000
	Pounds		
Petrolatum		13,000	34,000
Paraffin wax	1,365,000	2,375,000	1,225,000
Refined	475,000	285,000	
Scale	325,000	375,000	130,000
Lub. grease	800,000	800,000	685,000

The largest shipment to leave the local port in some time cleared during the week, consisting of a cargo of 3,250,000 gallons of refined products on the tanker Triumph for Shanghai, China.

Spot demand for refined products for shipment abroad continues confined to

limited quantities, for prompt and nearby delivery, and little interest is shown among export operators in the forward position of the market.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended November 21 totaled 1,652,000 bbls., a daily average of 236,000 bbls., compared with 930,000 bbls., a daily average of 132,857 bbls. for the previous week and a daily average of 232,429 bbls. for the four weeks ended November 21. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	304,000
Boston	53,000
New York	667,000
Philadelphia	308,000
Others	171,000
Total	1,503,000
Daily average	214,714
At Gulf Coast ports—	
Galveston district	20,000
New Orleans & Baton Rouge	129,000
Total	149,000
Daily average	21,286
At all United States ports—	
Total	1,652,000
Daily average	236,000
Daily average four weeks	232,429

Distribution of total imports is as follows:

Crude	814,666
Gasoline	302,666
Fuel oil	526,000

Charter Market

There was a sharp falling off in business in the tank car charter market reported during the week, only one fixture being reported. There is still a considerable surplus of tanker tonnage, and rates continue at record low levels.

Reports from abroad indicate a considerable movement of Rumanian gasoline to Atlantic Coast ports, but it is indicated that this motor fuel will be moved into Detroit via tank car.

The only fixture reported during the week was the following:

Motorship Garonne (Norwegian), 4,211 tons net, clean, California to Hamburg, 17/6, December-January loading.

EASTERN FIELDS

(Continued from Page 49)

drilled a third well on the William W. Geisinger farm to 467 feet. It proved the sand badly broken and was a dry hole.

In Athens County the Standard Natural Gas Co. completed a test on the David Young farm, near Hamley Run, Section 12, Waterloo Township. It is a Grit sand well at a depth of 1,036 feet and made 11 bbls. the first day after shot. In Section 1, Mill Creek Township, the Ohio Gas Light & Coal Co. completed No. 9 on its Coshocton County lease, the Edward Arnold farm. It is a small gas well in the Berea sand at a depth of 775 feet.

In Monroe County, John Crawford and others completed a test in the NW Section 27, Green Township, and on the Rudy Hudak farm. It is a 1-bbl. pumper from the Cow Run sand at 530 feet. In Section 14, Palmer Township, Washington County, G. E. Morris completed his No. 30 on the Effie M. Burt farm which produced 4 bbls. the first day after shot. It was drilled to the First Cow Run sand, which was dry, but the hole filled up from the Peeker sand and the well was shot and completed in that formation. It will probably settle down to a 1-bbl. pumper.

In Morgan County, W. S. Harris drilled a second test on the F. A. Gifford farm, 3 miles south of Chesterhill, Section 13, Marion Township. The first Cow Run sand was tested at 462 feet and found dry. In Ashland County, the S. W. Gas & Oil Co. drilled a test on the Daniel Young farm, Section 22, Lake Township. It went to a depth of 555 feet and in the Berea Grit which was found dry with a very light showing of gas.

Drilling in Ohio

In Muskingum County, the Atha Oil Co. is approaching completion in its test on the Homer Bendure farm in Section 10, Washington Township. It is drilling at the 3,200-foot level. In Hopewell Township, M. F. Whitehill has reached 3,100 feet in his No. 5 on the Boyer lease in Section 6, and in Section 11, Washington Township, the Mehson Oil & Gas Co. has a rig up on the J. A. Williams farm.

In Perry County the Mid-East Gas Co. and others have started their test on the Homer Caywood farm, Section 11, Reading Township, and are drilling at 500 feet. In Bearfield Township, E. W. English and others have started drilling on the Hugh McTague heirs farm in Section 12. In Madison Township, the Mid-East Gas Co. has reached the sand and is drilling through the cap on the E. Wilkins farm in Section 17. In Section 25, Coal Township, the Kachelmacher estate has a rig standing for No. 6 on the Hemlock Coal Co. tract.

WEST VIRGINIA

The week passed with no new production being recorded in West Virginia but several very fair gas wells were brought in. Work is still progressing on old oil producers in bringing them back to precurtailment figures. On Williow Island Run, McKim district, Pleasants County, Dinsmore & Co. are repressuring their lease on the George Leonard farm by air pressure on the sand and have increased their production considerably. The same company has increased its second lease in this district by air pressure several hundred per cent.

Gas Wells

In Boone County, Godfrey L. Cabot completed his No. 49 on the Federal Coal Co. tract in Sherman district in the Maxon sand at 2,262 feet. It is showing for a gas well in excess of 1,500,000 feet a day. His No. 50 reported completed last week is also a Maxon sand well at 2,405 feet and is showing for over 2,000,000 feet a day.

In Calhoun County, the present scene of activity in West Virginia, the Crummies Creek Fuel Corp. completed a fair well in its No. 3 on the D. J. Brannon farm, in Lee district. It is an Injun sand gasser at a depth of 2,276 feet and has been gauged at over 1,000,000 feet a day. In the same district, F. F. McIntosh drilled a third well on the J. Duskey farm in the Injun sand and to a depth of 2,294 feet. It proved to be a dry hole.

In Doddridge County, the Hope Natural Gas Co. drilled its No. 837 on the J. B. Dewhurst farm in McClellan district deeper from the Injun sand to the stray sand at 2,990-98 feet. There was a show of gas at 2,990-93 feet. Drilling was continued and carried on until the hole stood 3,244 feet. There was no sand found below the Stray sand. The hole was not plugged but production will be continued from the Injun sand. In Gilmer County, D. W. Law and others drilled a test on the Arnett Collins farm in Center district. It will be a small gas well in the Maxon sand at a depth of 1,712 feet.

In Lincoln County the Conley Gas Co. completed a fair gas well in its No. 4 on the William Adkins farm in Jefferson district. It was drilled to a depth of 2,302 feet. In Roane County, the Ohio Valley Gas Corp. completed No. 15 on the R. M. Jennings farm in Spencer district. It is a light gas well natural from the Injun sand at 2,095 feet.

Drilling in West Virginia

In Wayne County the Chartiers Oil Co. is down 3,250 feet on the Freeland Thompson farm in Butler district but has a fishing job at present. In Lincoln district, the Wayne United Gas Co. has Nos. 40 and 49 drilling on the A. W. Wilson heirs farm. No. 40 is at 1,720 feet, and No. 49 drilling at 1,400 feet. In Stonewall district, the same company has a well on the Newcomb tract drilling at 1,900 feet and one on the Hoard Baldwin farm at 2,500 feet. This company has prepared two additional locations on the Baldwin tract.

In Monongalia County the wildcat of the Carnegie Natural Gas Co. on the George Davison farm in Morgan district has been started and is down 925 feet. In Battelle district, the Duquesne Gas Co. is down 3,645 feet on the Martha Six farm. In the same district, the Crestline Oil & Gas Co. has reached 2,600 feet on the Owen Hennon farm. On the Kimble Wood lease in Battelle district, the West Penn Gas Corp. is down 700 feet. The same company has shut down without report on the Charlie Taylor farm after reaching 2,950 feet.

In Pleasants County, Charles Kerr is drilling another well on the Allen Holdren farm in Union district which has reached 1,200 feet. In the same district, G. W. Tice has a fishing job on hand in his test on the Hugh Morris farm at 1,200 feet. Frank Webb and others have set a drilling machine for a second test on the Frank Webb farm.

In Logan County, Estep, Bland and others have a test on the George C. Baker farm in Chapmansville district down to 1,450 feet. In Logan district the West Virginia Natural Gas Co. has two wells drilling both on the Dingess Run Coal Co. tract. No. 35 has reached 2,200 feet and No. 36 is down to 1,650 feet.

In Cabell County there are several tests drilling. In McComas district R. H. Adkins and others have started drilling on the B. S. Perry farm. In the same district the B. C. K. Gas Co. has reached 1,454 feet on the Retezel Lucas farm and has a location on the W. H. Nelson farm. In Guyandotte district, D. R. Campbell and others are down 600 feet on the C. C. Dunn farm. C. C. Wolfe has his No. 3 on the Ben Lomond Land Co. down to 1,650 feet.

In Wirt County, Pollack and Myers remain shut down in their test on the Pollack and Myers property in Clay district. In Burning Springs district, Fred Morehead is making fair progress in his No. 8 on the J. W. Hickman farm, and E. T. Shuck and others have shut down at 675 feet in No. 10 on the W. H. Wharton farm.

SOUTHWEST PENNSYLVANIA

There were two completions in Southwest Pennsylvania one a small oil producer. In Beaver County, C. T. Andrews completed his No. 3 on the Hannah Egleson farm in Hanover Township in the 100-foot sand, rated as a 1-bbl. pumper. In Perry Township, Greene County, the Equitable Gas Co. in drilling its No. 2,998 on the A. B. Wade farm struck a flow of gas in the Gas sand at 1,933 feet. Drilling was suspended and the flow was gauged as close to 750,000 feet a day. The well is being completed in that formation.

In Greene County the Equitable Gas Co. is rigging up on the Lena Brewer farm in Dunkard Township. The same company has a test on the M. Crago farm in Whitely Township drilling at 1,235 feet. In Dunkard Township, the Convex Glass Co. has a test on the E. Miller heirs farm drilling at 980 feet. In the same township, the Shider Johnson Co. is rigging up to drill deeper in its test on the Myrtle Sterling farm. In Whitely Township, the Equitable Gas Co. has reached 1,700 feet on the Leroy Stephens farm.

CENTRAL WEST FIELDS

(Continued from Page 49)

fair to be almost as productive as the Legrande Pool, just out of Horse Cave. The Munfordville Oil & Gas Co. opened the Logsdon Valley Pool about a year ago, but work was not rushed there at that time, due to the great activity in the Legrande Pool.

The most active development in the Logsdon Valley Pool at this time is by the Munfordville Co.; Hupp & Duff, Lexington oil operators, and Thomas Wittmer and others. These parties made haste in getting an outlet for their production by the building of an oil line from their wells to the railroad, shipping the oil by tank cars from Munfordville to the refinery at Latonia. The field now has a reported production of about 1,000 bbls. a day, which could be doubled by some additional drilling. The Munfordville Oil & Gas Co. according to reports has a production of approximately 600 bbls. a day and Hupp and Duff about 500 bbls. Hupp and Duffs Nos. 1, 2, 3 and 4 on the Grover Jaggers farm, are said to produce 350 bbls. a day, while this firm's Nos. 1 and 2 on the W. T. Spencer farm, are showing 150 bbls. a day. Hupp and Duff are drilling No. 3 W. T. Spencer farm, and have made locations for Nos. 5 and 6 on the Grover Jaggers farm. The oil pipe line handling this oil is known as the Green River Pipe Line Co.

Ohio County

In Ohio County, the Cumberland Petroleum Co.'s No. 3 on the David Brooks 120-acres, in the Hainsville Pool, reported with an initial of 50 bbls. from a depth of 331 feet. J. S. Hare and others reports a dry hole on the Charles Farmer farm, near Adaburg, Chester Oil Co.'s No. 1 on the I. T. Westerfield north 20 acres, in the Friendship Pool, reported good for 10 bbls. Porter and others are drilling on the Frank Hanna farm, in the same pool, and James C. Ellis is drilling on the Lucinda Taylor farm, near Adaburg, same county.

S. H. Russell and others are drilling No. 1 on the William Tanner farm, in the Colyer Pool, in Daviess County.

In the northwestern part of Hart County, unknown parties drilled a very nice gas well on the E. E. Gilson farm, near the hamlet of Priceville, and another gas producer was brought in by unknown parties on the Maxey Finley farm, same area.

GEOLOGICAL SOCIETY OF AMERICA IN TULSA

The forty-fourth annual meeting of the Geological Society of America will be held Tuesday, Wednesday and Thursday, December 29-31, 1931, at Tulsa, under the auspices of the Tulsa Geological Society, and on invitation of the American Association of Petroleum Geologists. The headquarters and exhibits will be located in the Mayo Hotel and all scientific sessions will be held there.

Charles B. Berkey, secretary of the Geological Society of America, Columbia University, New York City, is arranging details of the scientific sessions and has urged all fellows of the society to submit to him without delay titles and abstracts of papers to be presented so the program committee can arrange the program. These papers or abstracts should be in Mr. Berkey's hands by November 25.

Prof. Alfred C. Lane, Tufts College, Boston, Mass., is the retiring president and will deliver his address on "Eutopotropism" in the auditorium of the Central High School of Tulsa December 29, at 8 p. m.

The annual dinner will be held Wednesday evening, December 30, at 7 o'clock at the Mayo Hotel.

In conjunction with the meeting of the Geological Society of America, the American Association of Petroleum Geologists, the Paleontological Society, the Mineralogical Society of America and the Society of Economic Geologists will also hold their annual meetings in the Mayo Hotel. The Society of Economic Paleontologists and Mineralogists will meet with the Paleontological Society at this time. The program for the A. A. P. G. is in charge of A. W. McCoy, Ponca City, Okla., and only solicited papers will be presented at their meetings.

A number of field trips have been arranged for the guests which will include visits to Spavinaw, Oklahoma City, Arbuckle Mountains and Ardmore Basin, Wichita Mountains and Ouachita Mountains. All trips, except the one to Oklahoma City, will be made by automobile and opportunity will be afforded to make study of some of the outcrops of prominent formations.

It is variously estimated these meetings will draw to Tulsa from 500 to 1,000 visitors, many coming from distant cities in this country, Canada and Mexico and others making the trip by automobile, airplane or train from nearby points.

THOMAS JOHNSTON DIES

CHATHAM, Ontario, Nov. 28.—Word has been received at Petrolia, Ontario, of the death recently at Eagle Pass, Tex., of Thomas Johnston, aged 73. Mr. Johnston, who was at the time drilling in the Texas fields, was formerly interested in oil production in Petrolia.

ROCKY MOUNTAIN AREA

(Continued from Page 44)

Grand County, is drilling at 4,260 feet, and the Diamond Oil Co.'s No. 1, SE NW, Section 16-8s-5e, Utah County, is bottomed at 3,420 feet and pulling the 5⅞-inch to remove defective joint.

Pipe Line Runs

Average daily pipe line runs for the week ended November 28:

WYOMING

	Bbls.
Salt Creek	22,000
Big Muddy	1,720
Greybull	10
Dallas-Derby	650
Dutton Creek	70
Elk Basin	640
Ferris	40
Frannie	1,660
Grass Creek	1,920
Hamilton Dome	920
Hudson	260
LaBarge	800
Lance Creek	200
Lost Soldier	2,980
Midway	120
Oregon Basin	220
Osage	380
Pilot Butte	40
Rock River	1,730
Poison Spider	70
Teapot	30
Total Wyoming	36,450

MONTANA

Buckley-Border	520
Cat Creek	960
Dry Creek	250
Kevin-Sunburst	4,710
Lake Basin	70
Pondera	1,240
Total Montana	7,750

COLORADO

Florence	230
Fort Collins	910
Iles	880
Moffat	790
Orchard	700
Rangely	20
Tow Creek	290
Total Colorado	3,820

NEW MEXICO

Rattlesnake	680
Hogback	510
Table Mesa	80
Artesia	450
Cap Rock	1,235
Hobbs	37,195
Jal	1,000
Lea City	1,885
Eunice	500
Total New Mexico	43,535
Total Rocky Mountain area	91,555
Total previous week	95,379
Difference	3,824

CANADIAN FIELDS

(Continued from Page 75)

sand at 2,592 feet. The aggregate gas flow from the well is now around 10,000,000 feet a day.

Brooks Gasser

In the Brooks area, Canadian Western Natural Gas, Light, Heat & Power Co.'s No. 4, in Township 18-14w4, east of the town of Brooks, is bottomed at 1,360 feet after getting a flow of around 200,000 feet a day from the Medicine Hat sand. It will supplement the winter supply for the town of Brooks, where the Canadian Western company handles distribution. The diamond drill outfit will be moved to a new location about a mile south of Brooks for No. 5 test.

Spring Coulee Test

Alberta Pacific Consolidated Oils' No. 1, LSD 11, Section 15-4-23w4, on the Spring Coulee structure, has been pulling casing. Authentic figures show that the test was carried to a depth of 6,191 feet, and when the decision was reached to abandon it, the hole was full of water from 6,125 feet. The drill entered the Fernie shale at 5,642 feet and the Madison lime at 5,965 feet, and while several shows of oil and gas were reported, there was nothing of commercial value.

Wainwright Deep Test

In the Wainwright Field, East Central Alberta, Montreal-Alberta Petroleums' No. 1, LSD 2, Section 15-45-7w4, is rigging up with heavy duty rotary equipment for a deep test of the Wainwright Field.

Red Coulee Producer

On the Montana end of the international Red Coulee Field, Askalta Oils' No. 2 Farbo, SW NE, Section 2-37-4w, has been brought in at 2,514 feet, approximately the same depth as Askalta's No. 1 Farbo. No. 2 reported initial flow at the rate of 1,500 bbls. a day, but settled production will be around 200 bbls. South of the two Askalta producers, Hannah-Porter's No. 3 Iowa Holding Co. is drilling below 2,000 feet and Cosmos' No. 3 Iowa is spudding in.

Manitoba Gas Test

In the Manitou district, southwestern Manitoba, Commonwealth Petroleums' No. 2, LSD 2, Section 26-2-9-wPM, is reported drilling below 1,000 feet and will be continued to test a potential gas sand at around 1,500 feet.

Saskatchewan Drilling

In southern Saskatchewan, Blackfoot Oil & Gas Development Co.'s No. 1 wildcat, in Township 13-20-w2, near Wilcox, is reported drilling below 89 feet. In eastern Saskatchewan, pumping equipment is being secured to handle the salt brine encountered in Simpson Oil Co.'s No. 1, Section 9-29-25w2, at 3,445 feet. This is reported to be the deepest salt well in the world. As soon as the salt plant is in operation, work will be started on No. 2 test for oil and gas.

Moose Jaw Test

In the city of Moose Jaw, Saskatchewan, a test drilled some years ago is being deepened for oil and gas.

Ontario Drilling

In Middlesex County, Ontario, Union Gas Co.'s No. 2 Ekfrid, Lot 10, Concession 6, Caradoc Township, has been abandoned at 1,905 feet, without a show. The location was 10½ miles north of No. 1 Ekfrid and about 18 miles northeast of the Mosa gas area near Newbury. Union's No. 3 Ekfrid, Lot 13, Concession 3, Ekfrid Township, is drilling around 1,000 feet.

In Raleigh Township, Kent County, Olga Oil & Gas Co.'s No. 4, Lot 18, Concession 9, is drilling around 1,100 feet and should reach the gas sand in about a week.

Oil and gas leases, taken about a year ago in the southern and western part of Brooke Township, Lambton County, by the Southern Ontario Gas Co., are being renewed. It is reported a test may be started next spring.

Quebec Regulations Issued

With extensive drilling operations in the St. Lawrence Valley in prospect, the Quebec provincial government has issued regulations governing oil and gas operations in the province.

GULF COAST FIELDS

(Continued from Page 32)

and closer in to the dome from No. 22, an old producing well. Rio Bravo Oil Co. now has three operations on the west flank, two of which, however, are old wells, Nos. 10-A and 18-A Settegast, drilling deeper. The other is a new location, No. 23-A Settegast, made the past week. It is 1,375 feet south and 200 feet west of the northeast corner of the lease.

Two rigs are running on the northwest flank of the dome, these being Southern Petroleum Co.'s (Tilton and associates') No. 1 Barnes, now drilling about 4,350 feet, and Warner-Quinlan Co.'s No. 1 Minchen, a former well drilling deeper. Navarro Oil Co. also is working over an old well on the east flank.

Abercrombie & Harrison's No. 15 Nash, Nash Dome, Brazoria County, recently completed flowing 1,200 bbls. daily from sand at 4,844 feet, has failed to hold up and now screen is being cut out to deepen the hole. This well has been characteristic of the majority of wells which have been completed at Nash.

At Sorrento, Ascension Parish, Louisiana, Gulf Refining Co.'s No. 20 United Land Co., north side of the dome, apparently has passed up the productive sand in No. 19. The latter, only 400 feet east and 290 feet south of No. 20, was completed several months ago as Sorrento's flank sand discovery well. It found production in sand at a total depth of 4,351 feet after being plugged back from salt at 4,848-70 feet and flowed initially 300 bbls. of pipe line oil daily through a quarter-inch choke. No. 20 now is drilling below 4,700 feet without showings.

Gulf Production Co.'s No. 4 McFaddin, east flank of Moss Bluff, southern Liberty County, and which recently tested salt water in sand at 5,980-6,008 feet, is drilling deeper in search of a possible lower sand. Late in the week it was drilling shale below 6,110 feet.

Pure Oil Co. is making a record deep test on its Gueydan Dome, Vermillion Parish, Louisiana, in its No. 2 Southwest Louisiana Land Co. This test late in the week was drilling at 7,826 feet. Present plans call for drilling it to 8,000 feet. It is the third test on the dome. So far no showings have been encountered nor indications of the dome as found by this company's No. 1 Alliance Trust Co., which went into salt at 6,404-58 feet. The latter, however, is 4,280 feet east and 2,900 feet north of the present drilling test. The other test, No. 1 Southwestern Louisiana Land Co., was dry and abandoned at 6,594 feet.

DEVELOPMENT OF THE ELLSWORTH ARCH

(Continued from Page 32)

ahead slowly and to keep down development expenses to a minimum.

Even after the oil is discovered, because of low gas pressure it is found necessary to pump the wells early in their life and this adds to recovery costs. The oil varies from about 24 degrees A.P.I. gravity to as high as 44 degrees A.P.I. gravity but all of it is typical limestone oil and has relatively high sulphur contents and the gas contains hydrogen sulphide. This all tends to increase production costs because of excessive corrosion of equipment.

One Well to 40 Acres Proposed

The Public Service Commission of Kansas has recently issued a temporary order limiting one well to 40 acres, and under all existing conditions at this time this seems the best course to pursue because every additional barrel of oil thrown on the market now tends to weaken the price paid for all oil, and if prices for the oil from the central western Kansas area are reduced below their present levels there will be small inducement to drill up the area quickly, and if drilled the royalty and landowners will receive smaller returns.

The general area gives promise of playing an important part in the future as a source of a good grade of oil, one that is high in gasoline content and low in lubricating products. It is a very peculiar oil in many ways for it is quite black and having an asphaltic base appears to be low gravity crude but tests show that it will range in many wells from 40 to 44 gravity.

If well spacing is close it now appears that there is considerable risk in drilling into water in some wells and in this way flooding the whole local area around the producing wells and to avoid this it seems best to locate the test well in the center of a 40-acre square tract and thereby avoid direct offsets, and in this way lessen the chance of water intrusion.

The recovery per acre has been variously estimated at from 6,000 to 12,000 bbls. per acre and from what is now known of the producing formation it would seem that with the one well to 40 acres there will be a much better chance to control the rate of production and thereby hold back edge and bottom water and flush out the greatest amount of clean oil.

If the oil is "cut" with water it adds to the cost of production and the net returns are lower, and from past experience in other lime fields it is definitely known that water will move into the oil zone quickly if the rate of oil production is not restricted.

Past experience has shown conclusively that drilling in areas such as the one in central western Kansas now under consideration is dangerous if carried on at too great a rate. One particular case is recalled, that of the Noodle Creek Field in Jones County, Texas, where two structures crossed and created much the same local condition as are thought to exist where the Ellsworth and Barton arches cross in Kansas.

Oil was discovered in the Noodle Creek area and within three weeks two lines of four wells each were drilling with all possible speed and the pay horizon was reached quickly. The wells were produced as rapidly as possible with the result that the oil was very quickly exhausted and the water moved into the formation and the recovery per acre was much less than it would have been if orderly development had been followed. In that instance both operators and royalty owners suffered, and there is no reason why that experience should not now be borne in mind in the development along the Barton arch in Kansas.

There has always been an uncertainty about the amount of oil that can be recovered from Arbuckle lime structures and in Oklahoma City Field where there were two or three pay streaks in the old Arbuckle lime the total production is only about 17,000 bbls. per acre because of water moving in and cutting off considerable production. If that area with several porous pay zones could make only 17,000 bbls. per acre with one well to 10 acres what may be expected in central western Kansas where there is only one porous strata from 10 to 15 feet thick located upon a gently dipping structure with little closure and with water known to exist at the edge and bottom of the formation?

With the general expectation of higher prices for crude in the high consumption months next year and a greater demand for oil of good gasoline content, it would seem that the royalty and landowner will secure the greatest possible returns from deferred production in the central western Kansas area and true conservation of a natural resource will be made effective.

Two meetings are scheduled for early December in Kansas to discuss the question of developing the Ellsworth arch area on a basis of one well to 40 acres. The Public Service Commission will meet with producers and others interested at Lyons on December 10 at which time the Commission will decide whether or not to make its temporary one-to-the-forty order permanent. Two days previous to the commission's hearing at Lyons there will be a meeting of landowners and other royalty owners at Great Bend to discuss the one-to-the-forty plan. The oil operators in the area are almost a unit in favor of the plan and it is hoped that the landowners may be convinced of its soundness and its ultimate increased benefits to them.

EAST TEXAS FIELDS

(Continued from Page 25)

Tremble's No. 1 Jones, top sand 3,590 feet, initial production 150 bbls. per hour through 1-inch tubing choke, total depth 3,630 feet. Bond and others' No. 1 J. R. Fenton, top sand 3,564 feet, initial production 110 bbls. per hour through open tubing, total depth 3,587 feet.

Cal-Pet Corp.'s No. 2 Clements, top sand 3,712 feet, initial production 105 bbls. per hour through three-fourths inch tubing choke, total depth 3,748 feet. Cox & Hammon's No. 2 Fee, top sand 3,572 feet, initial production 70 bbls. per hour through 1-inch tubing choke, total depth 3,586 feet. Day & Armstrong's No. 1 Walker, top sand 3,601 feet, initial production 125 bbls. per hour through 1-inch tubing choke, total depth 3,606 feet. Empire Gas & Fuel Co.'s No. 4 L. A. Jeter, location abandoned. L. J. Everett's No. 1 Fee, top sand 3,623 feet, initial production 350 bbls. in 4½ hours through five-sixteenths inch tubing choke, total depth 3,635 feet. Fain & McGaha's No. 1 Allen Tooke, top sand 3,593 feet, initial production 175 bbls. per hour through various chokes, total depth 3,640 feet. F. H. E. Oil Co.'s No. 2 R. Christian, top sand 3,619 feet, initial production estimated 150 bbls. per hour through various chokes, total depth 3,650 feet. E. E. Fogleson's No. 1 J. B. Doby, top sand 3,524 feet, initial production 37 bbls. in 10 minutes through open tubing, total depth 3,565 feet.

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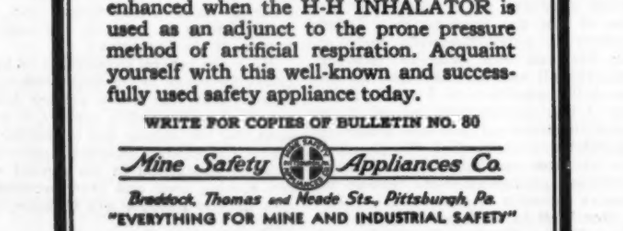

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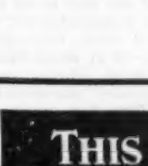

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sand 3,617 feet, initial production 100 bbls. per hour through open tubing, total depth 3,635 feet. Glasscock Brothers' No. 1 Snoddy, top sand 3,587 feet, initial production estimated 125 bbls. per hour through open tubing, total depth 3,602 feet. Henry Hobb's No. 1 J. R. Boazman, top sand 3,573 feet, initial production 140 bbls. in 40 minutes through open tubing, total depth 3,610 feet. Humble Oil & Refining Co.'s No. 3 T. M. Armstrong, top sand 3,565 feet, initial production 90 bbls. per hour through three-fourths inch tubing choke, total depth 3,590 feet. Same company's No. 5 Harris, top sand 3,648 feet, initial production 73 bbls. per hour through three-fourths inch tubing choke, total depth 3,582 feet. Same company's No. 2 Willingham, top sand 3,665 feet, initial production 90 bbls. per hour through three-fourths inch tubing choke, total depth 3,676 feet.

Magnolia Petroleum Co.'s No. 1 Everett, top sand 3,662 feet, initial production 198 bbls. per hour through 1-inch tubing choke, total depth 3,667 feet. Same company's No. 5 McKinley, top sand 3,630 feet, initial production 160 bbls. per hour through 1-inch tubing choke, total depth 3,644 feet. Same company's No. 1 J. A. Darnell, top sand 3,555 feet, initial production 160 bbls. per hour through 1-inch tubing choke, total depth 3,571 feet. Margay Oil Co.'s No. 2 J. Freeman, top sand 3,679 feet, initial production 75 bbls. per hour through open tubing, total depth 3,702 feet. McMurray & Ruster's No. 1 Snoddy, top sand 3,584 feet, initial production 125 bbls. in 38 minutes through open tubing, total depth 3,624 feet. Meridian Oil Co.'s No. 2 T. W. Lee, top sand 3,619 feet, initial production 64 bbls. per hour through one-half inch tubing choke, total depth 3,644 feet.

Mullendore & Berry's No. 2 D. L. Magrill, top sand 3,642 feet, initial production 85 bbls. per hour through 1-inch tubing choke, total depth 3,665 feet. Nash & Windfohr's No. 2 C. Jones, top sand 3,577 feet, initial production 190 bbls. per hour through 1-inch tubing choke, total depth 3,638 feet. Perrin & Fell's No. 2 E. E. Anderson, top sand 3,613 feet, initial production 176 bbls. per hour through 1-inch tubing choke, total depth 3,652 feet. J. L. Sarber's No. 1 W. T. Hall, top sand 3,608 feet, initial production 30 bbls. per hour through 1-inch tubing choke, total depth 3,604 feet. Selby Oil & Gas Co.'s No. 2 L. C. Ingram, top sand 3,485 feet, initial production 102 bbls. in 25 minutes through 1-inch tubing choke, total depth 3,545 feet.

Shell Petroleum Corp.'s No. 3 Burnside, top sand 3,507 feet, initial production 92 bbls. in 30 minutes through open tubing, total depth 3,548 feet. Stanolind Oil & Gas Co.'s No. 2 B. Jones, top sand 3,586 feet, initial production 189 bbls. per hour through open tubing total depth 3,660 feet. Same company's No. 8 Persons, top sand 3,498 feet, initial production 165 bbls. per hour through open tubing, total depth 3,498 feet. Superior Oil Co.'s No. 3 Ingram, top sand 3,585 feet, initial production 168 bbls. per hour through 1-inch tubing choke, total depth 3,552 feet.

The Texas Company's No. 5 Woods, top sand 3,548 feet, initial production 86 bbls. in 30 minutes through open tubing, total depth 3,560 feet. Tidal Oil Co.'s No. 3 E. N. Nettleton, top sand 3,531 feet, initial production 105 bbls. in 10 minutes through open tubing, total depth 3,532 feet. Same company's No. 7 Nettleton, top sand 3,456 feet, initial production 105 bbls. in 10 minutes through open tubing, total depth 3,487 feet. Same company's No. 1 Sheppard, top sand 3,545 feet, initial production 125 bbls. per hour through three-fourths inch tubing choke, total depth 3,575 feet. Same company's No. 3 Sheppard, top sand 3,678 feet, initial production 110 bbls. in 10 minutes through open tubing, total depth 3,692 feet. Texas Pacific Coal & Oil Co.'s No. 3 Fee, top sand 3,625 feet, initial production 124 bbls. per hour through three-fourths inch tubing choke, total depth 3,672 feet.

J. O. Willington's No. 1 Negro Church Lot, top sand 3,506 feet, initial production 140 bbls. per hour through open tubing, total depth 3,522 feet. Yount Lee Oil Co.'s No. 1 Inckel, top sand 3,514 feet, initial production 88 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,534 feet. Same company's No. 2-C M. Smith, top sand 3,550 feet, initial production 82 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,570 feet. Artic Oil Co.'s No. 1 J. S. King, top sand 3,647 feet, initial production 125 bbls. per hour pinched through tubing, total depth 3,653 feet.

T. A. Johnson and others' No. 1 Foltz, top sand 3,538 feet, initial production 125 bbls. per hour pinched through tubing, total depth 3,668 feet. W. C. Snyder's No. 1 B. Grier, top sand 3,668 feet, initial production 110 bbls. per hour through open tubing, total depth 3,675 feet. Magnolia Petroleum Co.'s No. 3 M. B. Huey, top sand 3,506 feet, initial production 198 bbls. per hour through 1-inch tubing choke, total depth 3,515 feet. Paul L. Miller's No. 1 W. H. Anderson, top sand 3,542 feet, initial production 100 bbls. per hour through three-fourths inch tubing choke, total depth 3,562 feet.

The Texas Company's No. 4 M. T. Cole, top sand 3,509 feet, initial production 135 bbls. per hour through three-fourths inch tubing choke, total depth 3,553 feet. Same company's No. 6 Elder, top sand 3,650 feet, initial production 92 bbls. per hour through three-fourths inch tubing choke, total depth 3,680 feet. Tidal Oil Co.'s No. 5 J. R. Beall, top sand 3,655 feet, initial production 75 bbls. per hour through three-fourths inch tubing choke, total depth 3,660 feet. Tidal and DeMayo's No. 1 Exie Benson, top sand 3,767 feet, initial production 125 bbls. per hour through open tubing, total depth 3,771 feet.

Rusk County

Acme Oil Co.'s No. 1 Givens, top sand 3,629 feet, initial production 150 bbls. per hour through open tubing, total depth 3,653 feet. Chapman and others' No. 1 Willingham, top sand 3,691 feet, initial production 45 bbls. per hour through 1-inch tubing choke, total depth 3,692 feet. Gulf Production Co.'s No. 2-A C. E. Christian, top sand 3,640 feet, initial production 112 bbls. per hour through three-fourths inch tubing choke, total depth 3,660 feet. Humble Oil & Refining Co.'s No. 2-A J. E. Sexton, top sand 3,772 feet, initial production 111 bbls. per hour through three-fourths inch tubing choke, total depth 3,792 feet. Bradstreet & Young's No. 1 H. C. Minor (formerly Jackson), top sand 3,672 feet, initial production 70 bbls. per hour through three-fourths inch tubing choke, total depth 3,673 feet.

Long-Henson and Kerr's No. 1 C. O. Christian, top sand 3,689 feet, initial production 125 bbls. per hour pinched through tubing, total depth 3,707 feet. Oliphant's No. 2 Poers, top sand 3,835 feet, initial production 150 bbls. per hour through open tubing, total depth 3,837 feet. Albert Plummer's No. 2 J. R. Beall, top sand 3,699 feet, initial production 100 bbls. per hour through three-fourths inch tubing choke, total depth 3,702 feet. Stanolind Oil & Gas Co.'s No. 4 Powers, top sand 3,739 feet, initial production 126 bbls. per hour through 2½-inch tubing choke, total depth 3,742 feet. Arkansas Fuel Oil Co.'s No. 3 Beall, top sand 3,712 feet, initial production 101 bbls. per hour through open tubing, total depth 3,730 feet.

Barney Cockburn's No. 1 Nathan Green, top sand 3,812 feet, initial production 90 bbls. per hour through one-half inch tubing choke, total depth 3,817 feet. British-American's No. 2 Murphy, top sand 3,630 feet, initial production 186 bbls. per hour through open tubing, total depth 3,665 feet. Falcon Oil Co.'s No. 6 T. O. Mason, top sand 3,612 feet, initial production 25 bbls. in 30 minutes through open tubing, total depth 3,641 feet. Golding & Murchison's No. 5 Ida L. Kinney, top sand 3,581 feet, initial production 100 bbls. per hour through 1-inch tubing choke.

Humble Oil & Refining Co.'s No. 1-C Ida Holt, top sand 3,732 feet, initial production 91 bbls. per hour through three-

fourths inch tubing choke, total depth 3,774 feet. Same company's No. 3 O. R. Holt, top sand 3,775 feet, initial production 100 bbls. per hour through three-fourths inch tubing choke, total depth 3,795 feet. Same company's No. 1 Moranda Joyner, top sand 3,772 feet, initial production 94 bbls. per hour through three-fourths inch tubing choke, total depth 3,776 feet. Same company's No. 2 Charles Pilgreen, top sand 3,708 feet, initial production 78 bbls. per hour through three-fourths inch tubing choke, total depth 3,794 feet.

London Oil Co.'s No. 1 Maxwell, top sand 3,775 feet, initial production 122 bbls. per hour through 1-inch tubing choke, total depth 3,795 feet. Mid-Kansas Oil & Gas Co.'s No. 6 M. M. Cross, top sand 3,603 feet, initial production 240 bbls. per hour through open tubing, total depth 3,615 feet. Mills-Bennett Production Co.'s No. 1 Pinkston, top sand 3,608 feet, initial production 120 bbls. per hour through open tubing, total depth 3,658 feet. R. M. V. Oil Co.'s No. 2 L. J. Pinkston, top sand 3,603 feet, initial production 60 bbls. in 20 minutes through open tubing, total depth 3,632 feet.

Sun Oil Co.'s No. 3 H. Schuler, top sand 3,667 feet, initial production 108 bbls. per hour through open tubing, total depth 3,677 feet. Same company's No. 2-B Schuler, top sand 3,662 feet, initial production 65 bbls. per hour through open tubing, total depth 3,696 feet. The Texas Company's No. 5 First Guaranty State Bank, top sand 3,718 feet, initial production 125 bbls. per hour through three-fourths inch tubing choke, total depth 3,749 feet. A. L. Waller, trustee's No. 1 Alford, top sand 3,642 feet, initial production 145 bbls. in 24 hours through 2½-inch tubing pinched, total depth 3,675 feet. Nat Wiseman's No. 1 Wilson, top sand 3,751 feet, initial production 125 bbls. per hour through open tubing, total depth 3,778 feet. Woodley Petroleum Co.'s No. 2 McMillian, top sand 3,741 feet, initial production 110 bbls. per hour through open tubing, total depth 3,760 feet.

Smith County

Pointer Oil Co.'s No. 2 T. O. Wright, top sand 3,671 feet, initial production 150 bbls. in 30 minutes through open tubing, total depth 3,702 feet.

Upshur County

Atlantic Oil & Production Co.'s No. 5 Moyers, top sand 3,568 feet, initial production 160 bbls. per hour through 1-inch tubing choke, total depth 3,600 feet. C. H. Brown and others' No. 1 W. M. Landers, top sand 3,691 feet, initial production 120 bbls. per hour through 1-inch tubing choke, total depth 3,714 feet. Cal-Petroleum Corp.'s No. 3 Dearing, top sand 3,696 feet, initial production 35 bbls. per hour through three-fourths inch tubing choke, total depth 3,719 feet.

Humble Oil & Refining Co.'s No. 1 L. C. Mackey, top sand 3,636 feet, top of Austin chalk 3,565 feet, dry and abandoned, total depth 3,674 feet. Magnolia Petroleum Co.'s No. 3 Blackwell, top sand 3,617 feet, initial production 160 bbls. per hour through 1-inch tubing choke, total depth 3,635 feet. O. W. Production Co.'s No. 1-B O. F. Smith, top sand 3,637 feet, initial production 104 bbls. per hour through 1-inch tubing choke, total depth 3,652 feet. Sabinos Oil Co.'s No. 1-B T. M. Collins, top sand 3,650 feet, initial production 125 bbls. per hour through various chokes, total depth 3,663 feet. Sabinos Oil Co.'s No. 1-B Falvey, top sand 3,730 feet, initial production 125 bbls. per hour through various chokes, total depth 3,737 feet. Shell Petroleum Corp.'s No. 6 Landers, top sand 3,723 feet, initial production 72 bbls. in 30 minutes through open tubing, total depth 3,743 feet.

Van Zandt County

Pure Oil Co.'s No. 6 Clark, initial production 490 bbls. in 24 hours through eleven-sixteenths inch tubing choke, total depth 2,942 feet. Same company's No. 8 Tunnell, initial production 545 bbls. through eleven-sixteenths inch tubing choke in 24 hours, total depth 2,962 feet. Sun Oil Co.'s No. 5 Thompson, initial production 360 bbls. in 24 hours through eleven-sixteenths inch tubing choke, total depth 2,936 feet.

TEXAS IS CHARGED WITH UNFAIR TACTICS

(Continued from Page 13)

advance the price of crude oil in that State from 10 cents to 85 cents. This advance has added $750,000 per day to the income of the people of Texas, or more than $20,000,000 per month.

Work of Selfish Producers

"Apparently a small selfish group of Texas oil producers are determined to wreck the market by hampering and hindering the governor in his efforts towards stabilization. They have never reduced production to 902,000 bbls., being the allowable determined to be fair for that State, and now in face of a lessened demand, are crying for removal of restrictions. This narrow view on the part of this minority in Texas, is working a grave injustice to Kansas and Oklahoma. Both States have produced less than their allowables since the Oklahoma City conference. It has been done at a sacrifice; but it will be useless for Oklahoma and Kansas to continue to curtail oil production as long as Texas refuses to curtail in an equal degree and, as a result, absorb the oil markets of Kansas and Oklahoma.

State Allocation

"However, we believe the vast majority of Texans are behind Governor Sterling and willing to play fair with Kansas and Oklahoma; therefore, it is suggested, in order to conform to the prevailing demand of consumption, that the allowables for Kansas be 100,000 bbls. per day; Oklahoma, 500,000 bbls. per day; and Texas, 825,000 bbls. per day, beginning January 1, 1932.

"The oil producers in the Mid-Continent Field cannot expect relief from Congress against imports of crude and refined products unless the production in American fields is economically produced and marketed in an orderly fashion. Let us then get down to bedrock and make this small curtailment in order to permanently stabilize the oil industry in the United States."

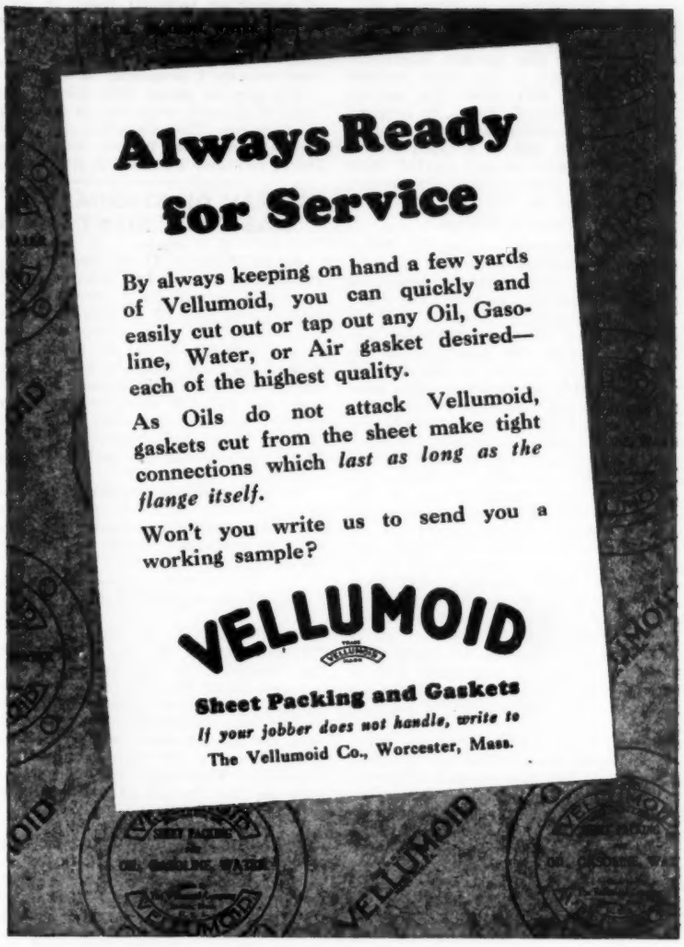
President Beaty Favors Deep Cut

President Beaty, of the American Petroleum Institute, emphasized the fact that too much oil was being produced and that if this was continued it would again bring distress upon the industry. He favored a deep cut in oil production. It should not be a matter of cutting down 100,000 bbls. a day, he said. Production in his estimation might better be cut down 500,000 bbls. a day. Pointing to the reports on supply and demand for crude as estimated by the committees of the American Petroleum Institute and the Federal Oil Conservation Board he said that in the past all the producers sought to do was to regulate their supply with demand. This was merely maintaining the status quo. It was not getting the industry anywhere. Production in his opinion should be cut below the demand to give the industry an opportunity of ridding itself of the burden of stocks of crude and refined products, and putting it on a decent basis.

President Davis, of the Mid-Continent Oil and Gas Association, who has taken an active part in the conservation movement since its beginning, gave it as his opinion that the report of the two committees on supply and demand were approximately correct. The work of the committees in the past had proved that. Granting that they were correct in their estimates the industry is wrongly headed, he said. The report showed that the industry would add materially to stocks this winter if production is maintained at its present level.

Kansas' Attitude

Commissioner Hill said the Kansas Public Service Commission was willing to make a further reduction in production in that State provided that Oklahoma and Texas did the same. Kansas' allowable was placed at 110,000 bbls. at the meeting last September in Tulsa; Oklahoma was allowed 546,000 bbls. and Texas 902,000 bbls., and the United States 2,376,000 bbls. He thought Kansas should be cut to 100,000 bbls.; Okla-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homa to 500,000 bbls. and Texas to 825,000 bbls., which would make the allowable production of the United States about 2,243,000 bbls. per day. This would put it somewhat in line with refinery demand, Mr. Hill said. As matters stand, he continued, Texas by overproducing is absorbing some of Kansas' natural market and to a much greater degree Oklahoma's natural market, while the two last named states are keeping production shut in.

Murray's Opinion

Cicero I. Murray, of the Oil States Advisory Committee, expressed the opinion that not much could be done until after the close of the year. The Oklahoma Corporation Commission had already made a ruling on allowable production covering the remainder of the year. Governor Sterling is now working on plans which aim to bring Texas more in line with the two other states in the three-state agreement on production. Until Texas comes to the assistance of Kansas and Oklahoma the situation cannot be helped. He expressed the opinion that crude oil prices would not be cut this year, but that if production was not greatly curtailed a cut might be expected immediately after New Year's day. It can be prevented, he believed, and it was up to Texas, Oklahoma and Kansas oil men to do so. Mr. Murray blamed refiners for the present serious situation. He said they were running more oil to stills than they required. He hoped Congress would pass an act, which will be placed before it, permitting interstate agreements on conservation of oil and gas.

Paul Walker, chairman of the Oklahoma Corporation Commission, expressed the opinion that Kansas and Oklahoma had been made the goat by Texas in the matter of conservation of oil. Like Commissioner Hill of Kansas he emphasized the danger to the petroleum structure by the unwillingness of Texas to curtail its production in line with its sister states.

Potential Test a Waste of Gas

In the general discussion the opinion was expressed that the commissions in charge of regulating production should make their allocations arbitrarily instead of permitting potential tests. In Oklahoma City, for example, it was said that the gas wasted during the taking of potentials was enough to last the field a long time as a propelling force.

The meeting closed with the appointment of a small committee to formulate a statement. The committee was made up of Messrs. Hill, Walker, Murray and Davis, and their statement is given above.

BUREAU OF STANDARDS HAS CONVENIENT TABLE

WASHINGTON, D. C., Nov. 30.—The Bureau of Standards has prepared a table to meet a demand for a short and convenient reduction of oil volumes to the basis of 60° F. when extreme accuracy is not required. It is not intended to replace the more complete and accurate volume correction table contained in Circular No. 154, but rather to supplement it and especially to replace the various abridged tables and approximate correction factors heretofore employed in the industry.

To avoid possible confusion in contracts involving reduction of oil volumes to the basis of 60 degrees the table used in such conversion should be cited by the contractor.—C. E. K.

MINERAL LEASING RECEIPTS

WASHINGTON, D. C., Nov. 30.—"Notwithstanding the low price of oil, the receipts under the mineral leasing act were $3,531,655, of which the largest amount was obtained from mineral lands in Wyoming amounting to $2,184,422," says the commissioner of the General Land Office in his annual report to Congress. "California was the second state in the amount of receipts with $870,453."—C. E. K.

FITZGERALD ON A.P.I. COMMITTEE

Announcement has been made of the appointment of Charles Fitzgerald, Pure Oil Pipe Line Co. of Texas of Dallas, Tex., as member of the American Petroleum Institute's committee on corrosion of oil field equipment.

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 25)

GREGO COUNTY

Arkansas Fuel Oil Co.'s No. 1 F. T. Rembert, 330 ft. from S and W lines of 166-ac. tract and 83-ac. lease, John Ruddle Sur. ..... Drlg. 3,420 ft.
Arkansas Fuel Oil Co.'s No. 1 M. Smith, 330 ft. from N and E lines of 40-ac. lease, W. H. Castleberry Sur. ..... Derrick.
Arkansas Fuel Oil Co.'s No. 1 C. L. Taylor, 295 ft. from N and S lines and 330 ft. from W line of E 21.94 acres of S 29.76 acres of 114.76-ac. tract, W. H. Castleberry Sur. ..... Derrick.
Atlantic Oil & Prod. Co.'s No. 1 M. B. Fisher, 1,415 ft. N of S line, 500 ft. W of E line of creek, W. H. Castleberry Sur. ..... Drlg. 2,900 ft.
Atlantic & Pacific's No. 1 B. Robinson, 330 ft. from N and W lines of 68-ac. tract, S. Davis Sur. ..... Set 10-in. csg. 105 ft.
Atlantic Oil & Prod. Co.'s No. 1 Turner estate, 893 ft. from N line and 1,557 ft. from E line of lease and survey, W. C. Wakeland Sur. ..... Coring 3,602 ft.
Ausley and Massingill's No. 1 A. Harris, center of 3-ac. tract, Gladewater Townsite, M. Dillard Sur. ..... S.D. 1,700 ft.
Blalock and Hensley's No. 1 Tom Hensley, center of west 6 acres of 12-ac. tract, John Ruddle Sur. ..... Derrick.
Brannon et al's No. 1 W. A. Horton, center of 2-ac. lease, John Ruddle Sur. ..... Set 6⅝-in. csg. 3,502 ft.; T.D. 3,515 ft.
Buchanan et al's No. 1 George Ritchie, 120 ft. N and 15 ft. W of Monnell and Currie's No. 1 Church Block No. 4, M. Dillard Sur. ..... Derrick.
Bramlette's No. 1 Goforth, 170 ft. due N of NW cor. of Sun-Hilburn-Lloyd lease in Chisum Sur. ..... Rig up and S.D.
Bob et al's No. 1 T. L. Broy, 290 ft. from E and 1,640 ft. from S of H. A. Holdt Sur. ..... Derrick.
M. T. Beeler's No. 1 Finley and Thomas, 150 ft. from N and 150 ft. from W of 10-ac. lease, C. H. Alexander Sur. ..... Derrick.
Branson et al's No. 1 J. J. Fuller, 1,050 ft. from N and 170 ft. from W of survey, M. Alexander Sur. ..... Derrick.
Byrd-Frost Oil Co.'s No. 1 Alexander and Strong, 330 ft. from S and E lines of 26-ac. tract, M. Tennison Sur. ..... Location.
Columbia Oil & Gas Co.'s No. 1-A Harley, 650 ft. E and 300 ft. S of SE cor. of Laura Walker 45-ac. tract, William Robinson Sur. ..... Drlg. 2,891 ft.
Danciger and Mahanan's No. 1 M. Christian, center of 6.39-ac. lease of north end of Mary Christian 196.-ac. tract, H. Hathaway Sur. ..... Drlg. 3,525 ft.
Empire Gas & Fuel Co.'s No. 1 J. C. Bumpass, 330 ft. S along road from NW cor. and 330 ft. E of W line of lease, W. H. Castleberry Sur. ..... Drlg. 500 ft.
Empire Gas & Fuel Co.'s No. 1 A. Green, 330 ft. from N, 330 ft. from W line of lease, W. C. Wakeland Sur. ..... Rig up.
Empire Gas & Fuel Oil Co.'s No. 1 H. A. Lockhart, 330 ft. from W line, 350 ft. from S line of lease, M. Tennison Sur. ..... Drlg. 2,520 ft.
Everett et al's No. 1 Barton, center Blk. 6, Mary Van Winkle Sur. ..... Drlg. 2,600 ft.
F. H. E. Oil Co.'s No. 1 R. Christian, 990 ft. from S line, 330 ft. from E line of 60-ac. tract, G. W. Hooper Sur. ..... Derrick.
Lewis Godlin's No. 1 E. L. Walker, 330 ft. N of road, 330 ft. from E line of 80.2-ac. tract, M. Dillard Sur. ..... Derrick.
Gulf Prod. Co.'s No. 1 M. F. Barker, 330 ft. S. 141 ft. E of NW cor. of 64-ac. lease, M. Dillard Sur. ..... Rig up.
Gulf Prod. Co.'s No. 1 C. Strong, 350 ft. from N line, 330 ft. from E line of 137-ac. tract, Joseph Hay Sur. ..... Waiting on cmt. to set 157 ft.
Harris et al's No. 1 E. T. Norton, center Block No. 17, H. R. Hokit Sur. ..... Derrick.
Harris et al's No. 1 J. E. Demosa, center of 1.5-ac. tract, H. R. Holdt Sur. ..... Drlg. 2,600 ft.
Humble Oil & Refining Co.'s No. 1 H. M. Lawrence, 540 ft. from N and 210 ft. from W of 100-ac. tract, David Ferguson Sur. ..... Derrick.
J. O. Hodges et al's No. 1 G. W. Ritchie, center of S 5 acres of N 10 acres of E 20 acres of Ritchie 40-ac. tract, Wm. Carlton Sur. ..... Drlg. 2,900 ft.
D. L. Hoffman's No. 1 Bumpass, 360 ft. from S line and 360 ft. from W line of 10-ac. lease, W. H. Castleberry Sur. ..... Drlg. 2,520 ft.
Iowa-Payne's No. 1 W. H. York, 275 ft. from S line, 125 ft. from E line of lease, M. Dillard Sur. ..... Derrick.
B. K. Isaac's No. 1 J. A. Tuttle, center of 4.5-ac. tract, H. Hathaway Sur. ..... Derrick.
K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur. ..... S.D. 700 ft.
M. E. Gaskitt's No. 1 J. A. Godfrey, 220 ft. from S line, 150 ft. from W line of 4.25-ac. lease, M. Dillard Sur. ..... Coring 3,577 ft.
Magnolia Pet. Co.'s No. 1 Foster, 330 ft. from W line and center of N and S lines of 29-ac. lease, W. G. Painter Sur. ..... Set 12½-in. csg. 114 ft.
Magnolia Pet. Co.'s No. 1 A. Hicks, 330 ft. from S line, 760 ft. from E line SE cor. of 93-ac. lease, D. Drainwood Sur. ..... Drlg. 3,674 ft.
Magnolia Pet. Co.'s No. 1 Redford, 330 ft. from N and W lines of 75-ac. tract, John Blair Sur. ..... Rig up.
Manzell et al's No. 1 E. L. Walker, center Blk. 54, M. Dillard Sur. ..... Set 10-in. csg. 875 ft.
E. G. Moren's No. 1 C. J. Dollahite, center of W 10 acres of 60-ac. tract, D. Sanches Sur. ..... Derrick.
Morgan and McMinn's No. 1 H. L. Foster, 150 ft. W, 15 ft. N SW cor. Magnolia Foster lease, Wm. Painter Sur. ..... Set 10-in. csg. 112 ft.
Navarro Oil Co.'s No. 1 E. L. Walker, 150 ft. out of W cor. of Block No. 1, M. Dillard Sur. ..... Derrick.
O. G. Oliphant and Tulsa Oil Co.'s No. 1 W. M. Wheeler, 330 ft. from S and E lines of 49.5-ac. tract, D. Ferguson Sur. ..... Set 12½-in. csg. 190 ft.
Pace Pet. Co.'s No. 1 Crim-Reynolds, Blk. 136, Kilgore Townsite, Mary Van Winkle Sur. ..... Spud.
Peterson et al's No. 1 Geo. Ritchie, 60 ft. from NE line, 60 ft. from S line of Blk. 3, M. Dillard Sur. ..... Drlg. 450 ft.
Phillips and Lee's No. 1 W. E. Bumpass, 250 ft. N of S. D. Spratt's No. 1 Bumpass, L. G. Risby Sur. ..... Drlg. 3,590 ft.
Ross et al's No. 1, located on Findley & Thomas 50-ac. tract, 150 ft. from S line of 6.66-ac. lease, C. H. Alexander Sur. ..... Derrick.
Sam P. Shelborn's No. 1 Dula Martin, 360 ft. S line, 990 ft. from E line of lease, W. P. Chisum Sur. ..... Set surface csg.
Shell Pet. Corp.'s No. 1 Donnie Carr, 330 ft. from N and W line of 100-ac. tract, M. McCurry Sur. ..... Moving in material.
Shell Pet. Corp.'s No. 1 A. A. King, 245 ft. from N line, 550 ft. from E line of lease, Geo. A. Thompson Sur. ..... Waiting on cmt. to set 353 ft.
Stanolind Oil & Gas Co.'s No. 1 Hobart King, 330 ft. from N line, 200 ft. from W line of 90.6-ac. tract, W. H. Hartt Sur. ..... Bldg. derrick.
C. R. Starnes' No. 1 G. C. Dunaway, center of Blk. 5, 115 ft. S. 475 ft. W SE cor. H. R. Hokit Sur. ..... Rigging up.
Sun Oil Co.'s No. 1 Calvin Brown, 330 ft. from most southerly S line and middle of E and W lines of lease, L. B. Outlaw Sur. ..... Derrick.
Shano Oil Co.'s No. 1 S. G. Smith, 162 ft. from N and S lines, 330 ft. from W line of 17-ac. lease, W. H. Castleberry Sur. ..... Drlg. 800 ft.
Sun Oil Co.'s No. 1 J. E. Rollins, 1,492 ft. from N line, 1,492 ft. from S line, 589 ft. from W and E lines of 85-ac. lease, M. Scott Sur. ..... Location.
Tom C. Patten's No. 1 George Walter, center of 1-ac. tract and 396 ft. from W line of lease, Mary Van Winkle Sur. ..... Location.
Tidal Oil Co.'s No. 1 Lake Divernia Fish and Game Club, 300 ft. from N and 550 ft. from W lines of tract in William G. Painter Sur. ..... Waiting on cmt. to set 3,470 ft.
Travis and Wair's No. 1 A. B. Loughridge, 330 ft. from S line, 590 ft. from E line of 30-ac. lease, Thomas Johnson Sur. ..... Derrick.
Valentine Oil Co.'s No. 1 Goyne-Hughey, 6,100 ft. from S and 6,800 ft. from W of survey, Mary Van Winkle Sur. ..... Rigging up.

HENDERSON COUNTY

J. M. Roger's No. 1 M. N. Gussett, 150 ft. from N line, 1,000 ft. from W line of 102.5-ac. tract, L. D. Stover Sur. ..... Spudded and shut down.
Seven Wells Corp.'s No. 1 Douglas, 767 ft. from N and 833 ft. from E of tract in K. H. Douglass Sur. ..... S.D.; waiting orders; T.D. 4,441 ft.
South American Drlg. Co.'s No. 1 D. R. Broone, 330 ft. from N and W lines of SE 40 acres of 425-ac. tract, Thomas Parmer Sur. ..... Rigging up.

HILL COUNTY

Sherman-Houseman's No. 1 J. F. Griffith, in Samuel Waddell Sur. ..... S.D. 3,200 ft.

HOPKINS COUNTY

Roark et al's No. 1 Taylor, 330 ft. from N and W lines of 80-ac. tract in the John Polk Sur. ..... S.D. 540 ft.

HOUSTON COUNTY

Apex Drlg. Co.'s No. 1 Thompson Bros., 250 ft. out of NW cor. of 200-ac. tract in John Shears Sur. ..... T.D. 3,364 ft.
Ramsland and Ramsland's No. 1 Pennington, 750 varas W of E line and 500 varas from S line of survey on 186-ac. tract, Ramond LaGarsa Sur. ..... S.D. 1,692 ft.
C. T. McManus' No. 1 Harron, 300 ft. out of NE cor. of 227-ac. tract, J. P. Procella Sur. ..... Spudded and S.D. 37 ft.

HUNT COUNTY

Branson et al's No. 1 Gray ..... Location.
Russell et al's No. 1 Brooks and Quattlebaum ..... S.D. 1,455 ft.

LAMAR COUNTY

Indian States Oil Co.'s No. 1 W. T. Watson in Ignailus Aud Sur. ..... S.D. 4,026 ft.
Kenner Oil & Gas Co.'s No. 1 McGustion, 450 ft. from S line, 450 ft. from W line of farm and survey, Galet Wood Sur. ..... Rig up.
Optometrist Oil Club's No. 1 J. M. McFadden, 450 ft. from S and W lines of McFadden E 25-ac. tract, J. Deck Sur. ..... S.D. 1,672 ft.
Puritan's No. 1 George Parr, 2,000 ft. from W of Frisco Railway and 1,000 ft. from E line of R. Russell Sur. ..... Rigging up.

LEON COUNTY

Cooper et al's No. 1 Lynch, 4,000 ft. from W line and 250 ft. N from the S line of Thomas H. Gardner Sur., and in 200-ac. tract ..... S.D. 1,931 ft.
Sun Oil Co.'s No. 2 Grayson ..... Drlg. 5,404 ft.

MORRIS COUNTY

Dumas et al's No. 1 Tom Ball, 1,046 ft. from E and 248 ft. from S of 71-ac. tract, A. S. Young heirs Sur. ..... Derrick.

NACOGDOCHES COUNTY

Bunte et al's No. 1 A. F. Boatman, 330 ft. from S and 150 ft. from W of 67-ac. tract, William A. Moore Sur. ....S.D. 1,605 ft.

Churchill-Armstrong's No. 1 Max W. Hart, 2,040 ft. from N line and 2,640 ft. from S of N line of survey, George Pollett Sur. ....Derrick.

G. A. Teague's No. 1 Norris, 60 ft. NW of E line and 420 ft. S of road in 73.5-ac. tract, Hosea Y. Barbo Sur. ....Derrick.

Geiner et al's No. 1 Nice Well, 18 miles SE of Nacogdoches, 600 ft. from S and 150 ft. from W of Wells tract in A. Cherino Sur. ....S.D. 3,430 ft.

Joiner and Henson's No. 1 Andy Legg, 330 ft. from N and 330 ft. from W of tract, John Durst Sur. ....S.D. 3,920 ft.

Scully & Harwell's No. 1 R. I. Driver, 1,500 ft. from SE cor. of P. B. Ballard 125-ac. tract, 15 miles SE of Nacogdoches in Patricia De Torres Sur. ....Drlg. 3,316 ft.

Taylor-Vaughn's No. 1 Dixon Greer, 160 ft. from W and 450 ft. from N lines of 60-ac. tract in the M. G. Herrera Sur. ....S.D. 265 ft.

Creighton Drlg. Co.'s No. 1 J. N. Stewart, center of 79-ac. tract in the Jose Ignacio Ybarbo Sur. ....S.D. 3,226 ft.

POLK COUNTY

Humble Oil & Ref. Co.'s No. 1-A Onolaska Live Stock, 1,700 ft. NW along property line from most northerly E cor. of survey and 75 ft. SW at right angles, Wm. B. Hardin Sur. ....Location.

RAINS COUNTY

C. H. Bayliss' No. 1 Ownby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. ....Top Austin chalk 3,390 ft; base 3,512 ft.; S.D. 3,515 ft.

RED RIVER COUNTY

Doyle and Jondreau's No. 1 V. S. Griffin, 700 ft. from N line and 650 ft. E of W line of survey, J. C. Brown Sur. ....Slush pit.

Droppleman and Bundy's No. 1 J. W. Cunningham, 350 ft. from the S and 1,066 ft. from the E lines of B. M. Ballard Sur. ....Rig up.

Gibbs et al's No. 1 Mace (old well being drilled deeper), 1,200 varas from S line, 1,500 varas from E line of survey, Wm. Cullam Sur. ....T.D. 3,538 ft.

Harris & Joiner's No. 1 E. Howison, 225 ft. S, 185 ft. W of 79-ac. tract, William Humphreys Sur. ....S.D. 1,940 ft.

Concord Oil Co.'s No. 1 J. R. Dellahunty, 500 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. ....S.D. 1,717 ft.

L. G. Priest's No. 1 J. M. Stiles, 900 varas S and 500 varas E most northerly NE cor. of Jones Bankston Sur. in the Levi Dean Sur. ....S.D. 1,042 ft.

ROCKWALL COUNTY

Bucanner Oil Co.'s No. 1 H. L. Lofland, center of 69-ac. tract in W. M. Bird Sur. ....Set 10-in. csg. 120 ft.

RUSK COUNTY

A. J. Brown's No. 1 Strong, J. Hallam Sur. ....S.D. 850 ft.

Byrd-Frost's No. 1 Buckner, J. E. Peyton Sur. ....S.D. 2,818 ft.

Chapman's No. 1 W. M. Futch, 330 ft. from N line and 500 ft. from E line of survey and lease, Jos English Sur. ....Drlg. 2,000 ft.

F. C. Clark's No. 1 A. Johnson, center of 3-ac. lease, E. A. J. Evans Sur. ....Derrick.

Griffith Bros.' No. 1 S. E. Brox, 330 ft. from N and W lines of 30-ac. tract, Thomas Grace Sur. ....Run tubing in hard dry sand 3,602 ft.

Hathaway et al's No. 1 Gray, J. M. McLain Sur. ....S.D. 2,500 ft.

H. E. Hiden's No. 1 Varney, 100 ft. from N line, 125 ft. from E line of road, W. G. Tutt Sur. ....Derrick.

Houston Oil Co.'s No. 1 J. N. Peterson, 330 ft. from S line and center of E and W lines on a 38-ac. lease, R. W. Smith Sur. ....Drlg. 3,080 ft.

Humble Oil & Ref. Co.'s No. 1 Ben Peterson, 453 ft. from N line, 330 ft. from W line of N line and 330 ft. from W line of 50-ac. lease, J. Lewis Sur. ....Fishing 2,864 ft.

Humble Oil & Ref. Co.'s No. 1 C. W. Wilson, 963 ft. from N line of Joe Williams tract, 400 ft. S, 156 ft. E of SW cor. of V. E. Reed tract, T. J. Martin Sur. ....Derrick.

Humble Oil & Ref. Co.'s No. 1 J. T. Robertson, 380 ft. from S line, 330 ft. from W line of 15-ac. lease, Thomas Grace Sur. ....Derrick.

H. L. Hunt's No. 2 R. J. Vinson, 990 ft. from N line, 330 ft. from W line of 55-ac. tract, Thos. H. Smith Sur. ....Waiting on cmt. to set.

H. L. Hunt's No. 1 V. E. Reed, 330 ft. from N and W lines of 135-ac. tract, T. J. Martin Sur. ....Drlg. 3,737 ft.

A. W. Jones Oil Co.'s No. 1 J. M. Grant, 346 ft. from S line, 1,076 ft. from E line of 100-ac. tract, T. J. Walling Sur. ....Coring sand and shale 1,450 ft.

Noel Rushing et al's No. 1 Geo. Thompson, 700 ft. from N line and 600 ft. from W line of lease and survey. ....Drlg. 3,540 ft.

Risinger et al's No. 1 L. Barton, 40 ft. S, 330 ft. W of Able and Avery's No. 1 Florey, W. G. Tutt Sur. ....Drlg. 3,029 ft.

Sadonovitch and Hoffman's No. 1 T. O. Mason, 200 ft. from S and W lines of 3.5-ac. tract, J. B. Cadena Sur. ....Location.

Steadham and Thrasher's No. 1 Lillie Jones, 300 ft. from N line, 150 ft. from NE line of 50-ac. tract, F. Cordova Sur. ....Building derrick.

Ross Seward's No. 1 Burton, J. J. Y'Barbo Sur. ....S.D. 3,110 ft.

The Texas Company's No. 1 J. M. Price, 330 ft. from N line, 330 ft. from W line of 99-ac. lease, Thos. M. White Sur. ....Location.

The Texas Co.'s No. 1 J. M. Price, located in the NW cor. of J. M. Price's 99-ac. lease, Thos. M. White Sur. ....Derrick.

The Texas Co.'s No. 1 A. W. Kerah, located in the NE cor. of A. W. Kerah's 211-ac. tract, E. B. Fowlkes Sur. ....Derrick.

The Texas Co.'s No. 1 W. W. Henry, located in the NE cor. of W. W. Henry's 2,295-ac. lease, W. J. Roane Sur. ....Location.

M. L. Thompson's No. 1 Price, Hugh Million Sur. ....S.D. 3,280 ft.

Weaver and Crim's No. 1 Bean, 330 ft. from S line and midway between E and W lines of lease, H. Hobson Sur. ....Drlg. 2,807 ft.

Tex-Jersey Oil Corp.'s No. 1 G. W. Eaton, center of 1.54-ac. tract, F. Cordova Sur. ....Reaming 3,800 ft.

JOINER POOL—RUSK COUNTY

Armstrong's No. 1 Alford, 151 ft. from S and 1,080 ft. from W of survey, T. J. Moore Sur. ....Derrick.

Duncan and Holt's No. 1 R. A. Motley, 150 ft. from N line, 2,700 ft. from W line of Motley 100-ac. tract, F. Cordova Sur. ....Drlg. 2,846 ft.

Jackson et al's No. 1 P. C. Warren, 390 ft. from N line, 253 ft. from E line of 45-ac. tract, J. Womack Sur. ....Derrick.

M. & G. Oil Co.'s No. 1 Lewis Deguerin, 1,050 ft. from E line, 3,075 ft. from S line of survey, M. J. Pru Sur. ....Drlg. 3,560 ft.

Magnolia Pet. Co.'s No. 1 S. E. Brox, 330 ft. from N and W lines of most northerly NW cor. of 34.5-ac. lease, Geo. Cooper Sur. ....Set 12½-in. csg. 154 ft.

Mass and Tucker's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartimas Sur. ....S.D. 3,350 ft.

Paulett et al's No. 1 Ed Sparks, 250 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. ....Bailed dry after small show of gas; T.D. 1,313 ft.

Pitts et al's No. 1 Freeman, 1,000 ft. N of S line and 1,000 ft. E of W line of 181-ac. tract, J. Watkins Sur. ....Rig blew down.

Priest et al's No. 1 Mayfield, 155 ft. from N and W lines of 22-ac. lease in Daniel Clark Sur. ....Waiting on casing.

Sullivan & Burch et al's No. 1 F. J. Cox, 330 ft. from S line and 330 ft. from W line of tract, R. H. Penny Sur. ....Waiting on cmt. to set 3,566 ft.

W. W. Hinchliffee's No. 1 L. J. Pinkston, 330 ft. from E line and center of N and S lines of lease, J. B. Cadena Sur. ....Waiting on cmt. to set 3,614 ft.

SAN AUGUSTINE COUNTY

Smith and Baker's No. 1 Pickering Lumber Co., 6 miles N of San Augustine, E. Quick Sur. ....Derrick.

SMITH COUNTY

Arcadia Ref. Co.'s No. 1 Wolford, center of 10-ac. tract, J. Jordan Sur. ....Location.

Bunte et al's No. 1 Atkinson, 1,000 ft. from S line and 1,000 ft. from N line of 330-ac. tract, Calloway Dean Sur. ....Derrick.

Cotton Belt Oil Co.'s No. C. S. Jackson, 500 ft. from N and 500 ft. from W of 39.88-ac. tract, Henry Mickleborough Sur. ....S.D. 4,038 ft.

Graham Bros.' No. 1 S. S. Cooke, 208 ft. from N and S lines and 506 ft. from E line of lease, Juan Vargus Sur. ....Derrick.

Ignatius P. O'Neal's No. 1 Mayfield, 330 ft. from S line and N offset to Sinclair's No. 6-A Mayfield, James Jordan Sur. ....Location.

J. R. Mecker et al's No. 1 Lewis Bacon, 990 ft. from N line, 906 ft. from W line, Wm. Sparks Sur. ....Spudded.

Tytex Oil Co.'s No. 1 Alex Weidert, 2,030 ft. from S line, 525 ft. from E line of Franklin T. Bodenheimer Sur. ....Derrick.

TITUS COUNTY

Perry V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. ....S.D. 2,875 ft.

Joiner et al's No. 1 Clayton Brown, 1,300 ft. from E and 400 ft. from most northerly S line of V. Evans Sur. ....S.D. 2,250 ft.

J. P. Flannagan's No. 1 McGill, 450 ft. from S and 662 ft. from W of H. C. Riggs Sur. ....Drlg. 6,918 ft.

UPSHUR COUNTY

Harry V. Black's No. 1 J. M. Burrough, 330 ft. from S and W lines of 3-ac. tract, Wm. King Sur. ....Drlg. 3,550 ft.

Cal Pet Corp.'s No. 1 W. H. Reed, 330 ft. from S and E line of 50-ac. lease, Marshall Mann Sur. ....Drlg. 1,600 ft.

E. L. Chapman's No. 1 D. P. Guest, 300 ft. out of NE cor. of Guest 129-ac. tract and survey ....Derrick.

Cranfill & Reynold's No. 1 Milton Rash, 1,687 ft. E of W line and 330 ft. N of S line of Rash estate, E. N. Eubanks Sur. ....T.D. 3,729 ft.; set 6⅝-in. csg

Danciger Oil & Ref. Co.'s No. 1 J. N. Taylor, center of E and W lines of lease and 330 ft. from S line, M. Mann Sur. ....Rig up.

Cal-Pet Corp.'s No. 1 T. B. Stinchomb, 694 ft. S, 348 ft. W of SE cor. of 87.29-ac. tract, M. Mann Sur. ....Rig up.

Galvey Oil Co.'s No. 1 W. W. Holland, 330 ft. from E line, 330 ft. NE of SW line of W 45 acres of Holland 246-5-ac. tract, T. Allen Sur. ....Drlg. 2,965 ft.

Hawkeye Pet. Co.'s No. 1 H. Fenton, 330 ft. from W line and center of N and S lines of 13.5-ac. tract, G. W. Hooper Sur. ....Location.

Humble Oil & Ref. Co.'s No. 1 T. Jones, 187 ft. S, 297 ft. W of most easterly NE cor. of 126.44-ac. lease, Wm. King Sur. ....Derrick.

Humble Oil & Ref. Co.'s No. 1 A. L. Shelton, 581 ft. from N line, 561 ft. from S line, 350 ft. from W line of 29.8-ac. lease, D. Ferguson Sur. ....Rigging up.

Humble Oil & Refining Co.'s No. 1 C. T. Shelton, 330 ft. from W line of S 59-ac. tract and 369 ft. from S line of survey, William King Sur. ....Coring 3,710 ft.

Humble Oil & Ref. Co.'s No. 1 D. C. Shelton, 273 ft. from E of W line, 150 ft. N of S line of 19.5-ac. lease, Wm. King Sur. ....Rigging up.

H. C. Hurley's No. 1 W. F. Smith, 330 ft. from E line and center of N and S lines of S 25 acres of W 50 acres of 100-ac. tract, J. Pineda Sur. ....Rig up.

Magnolia Pet. Co.'s No. 1 H. Fenton, 330 ft. from S and W lines of 50-ac. tract, Wm. King Sur. ....Location.

Pilot Oil Co. et al's No. 1 J. D. Ray et al, 1,050 ft. from N line, 950 ft. from S line, 990 ft. from W line of 218-ac. tract, A. H. Wood Sur. ....Location.

Shasta Oil Co.'s No. 1 E. E. Hall, 990 ft. from S line, 330 ft. from W line of 73.2-ac. tract, R. T. Gipson Sur. ....Drlg. 3,290 ft.

Shano Oil Co.'s No. 1 D. Rodden, 856 ft. from N and S lines, 544 ft. from W and E lines of W 40 acres of S 80 acres of 100-ac. tract, Marshall Mann Sur. ....S.D. 1,302 ft.

W. H. Peckam's No. 1 J. B. Well, 200 ft. N and 439 ft. W of SE cor. of W 20 acres of 71-ac. tract, G. W. Hooper Sur. ....Waiting on cmt. to set 3,641 ft.

J. A. Wood's No. 1 A. J. Sanders, 271 ft. S, 330 ft. W of NE cor. of 45-ac. lease, T. Allen Sur. ....Derrick.

Wolf's No. 1 Cook, center of 115-ac. tract in Jacob Walker Sur., 5 miles W of Rosewood ....S.D. 1,100 ft.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 600 ft. out of NE cor. of Hubbard 225-ac. tract, 3½ miles S of Canton, M. J. Cadena Sur. ....S.D. 2,000 ft.

Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ....S.D. 2,300 ft.

Thomasson, Inc.'s No. 2 W. P. Forster, 600 ft. from N and 450 ft. from E of SW cor. of Forster 151-ac. tract in the F. Montgomery Sur. ....Drlg. 2,750 ft.

Priest et al's No. 1 B. G. Beckham, 150 ft. from S line, 33 ft. from W line of 100-ac. tract, A. S. Johnsonson Sur. ....Derrick.

Pure Oil Co.'s No. 1-T V. T. Davis, 400 ft. N of N line of Tunnell No. 8 lease, 480 ft. W of E line of Sur., Nacogdoches County School Land Sur. ....Drlg. 4,550 ft.

Pure Oil Co.'s No. 3 H. C. Gilbert, 856 ft. E of W line, 225 ft. N of S lines of lease, Mund Gross Sur. ....Drlg. 2,972 ft.

The Texas Company's No. 3, 792 ft. S of N line, 350 ft. E of W line of lease in Nacogdoches County School Land Sur. ....Drlg. 1,818 ft.

Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ....T.D. 2,850 ft.

WOOD COUNTY

Talko Oil Co.'s No. 1 G. T. Ross, B. L. Smith Sur. ....S.D. 1,550 ft.

Wood County Dev. Co.'s No. 1 Davis, approximately 180 ft. from S line of 160-ac. tract and 2¼ miles S of Kantes in Sarah McDonald Sur. ....Derrick.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 28)

FISHER COUNTY

Cranfill & Reynolds' No. 1 George, 400 ft. from N and 380 ft. from E. Sec. 200, Blk. 1, B.B.&C. Sur. ....Drlg. 3,640 ft.

Cranfill & Reynolds' No. 1 Snipe, 330 ft. from N and W lines of Sec. 195, Blk. 1, B.B.&C. Sur. ....Drlg. 1,592 ft.; elevation 1,586 ft.

GARZA COUNTY

Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (2,500-ft. cable tool test) ....Fishing for 6⅝-in. csg.; T.D. 3,320 ft.

BAROID

Extra-Heavy Colloidal Drilling Mud

BAROID is a uniform, high-grade specially prepared pulverized weight material for increasing the weight of Drilling Mud to overcome high gas and water pressures. BAROID has a specific gravity of 4.2 and is compounded so as to enable the preparation of pumpable Muds weighing 140 to 150 lbs. per cubic foot.

Adequately weighted muds control gas pressure and prevent blowouts.

Great savings result from the use of BAROID. Drilling Muds made up from BAROID will not settle out if circulation is suspended and freedom from the danger and expense of stuck drill pipe and casing is assured. Literature on request.

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HOWARD COUNTY

Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur.—Spudded and S.D.

Merrick & Lamb's No. 2 Chalk, 990 ft. from the N and W lines of Sec. 135, Blk. 29, W.&M.W.R.R. Sur.—T.D. 3,292 ft.; will plug back to 1,700 ft.

L. C. Harrison et al's No. 1 L. C. Denman, 2,310 ft. from S line and 330 ft. from E line of Sec. 10, T.&P.R.R. Sur., Blk. 30—Drlg. 210 ft.

IRION COUNTY

Davis et al's No. 1 Suggs, 1,560 ft. from S and 925 ft. from W Sec. 3,081, Blk. 28, H.&T.C. Sur.—Fishing 5,511 ft.

Denny & Andrews' No. 1-A Tankersley, 200 ft. from S and 2,000 ft. from E of Sec. 709, J. P. Imhoff Sur.—S.D. 463 ft.

Ellis Flanery Corp.'s No. 1 Nutt, 1,350 ft. from N and 450 ft. from E of Sec. 694, Kheikenholm Sur.—Shut down 2,900 ft.

Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur.—Drlg. 6,775 ft.

Straughn & Adkins Bros.' No. 1 Lee, 1,980 ft. from W and 420 ft. from N of Sec. 729, C. Kaiser Sur.—Shut down 975 ft.; to underream.

JONES COUNTY

Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 43.4-acre tract in G. Martinez Sur.—S.D. 1,005 ft.; temporarily abandoned.

Johnson's No. 1 Huddleston, 165 ft. from S and W of N half of N half of Sec. 39, Blk. 18, T.&P. Sur.—Moving in rig.

LOVING COUNTY

Ervin & Mahres' No. 1 Thrope, 2,310 ft. from E and 330 ft. from S Sec. 46, Blk. 53, T.&P. Sur.—S.D. 810 ft.

Slack's No. 1 Lynd, 990 ft. NE and 330 ft. SE of Sec. 3, Blk. 2, W.&N.W. Sur.—Drlg. 3,652 ft.

Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW Sec. 79, Blk. 33, H.&T.C. Sur.—S.D. 2,500 ft.

Lewis & Siagel's No. 1 Johnson, 330 ft. from N and 1,650 ft. from W Sec. 6, Blk. 56, Twp. 1, T.&P. Sur.—Rigging up national machine

Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur.—S.D. 3,385 ft.

Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur.—Drlg. 2,680 ft.

MENARD COUNTY

Priest's No. 1 Sorrel, 1,000 ft. from E and 300 ft. from S cor. Sec. 132, E.L.R.R. Sur.—S.D. 2,860 ft.

PECOS COUNTY

Anderson's No. 1 Le Fever, 330 ft. from N and W of Sec. 75, Blk. 8, H.&G.N. Sur.—Location.

Cardinal Oil Co.'s No. 1 J. H. Tippett ("J"), 1,980 ft. from the S line and 990 ft. from the W line of Sec. 2, D. F. Robertson Sur.—Location.

Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur.—Drlg. 525 ft.

Slaughter et al's No. 1 Sun Yates, 60 ft. S of Sun Oil Co.'s No. 1 Yates, Sec. 59, Blk. 1, I.&G.N. Sur.—Material.

REAGAN COUNTY

Carl Cromwell et al's No. 1 University, 1,320 ft. from S line and 1,320 ft. from E line of Sec. 4, University Blk. 7—Spudded 55 ft.

Big Lake Oil Co.'s No. 6-C University, 1,370 ft. from S and 1,000 ft. from E Sec. 12, Blk. 2—Drlg. 4,615 ft.

REEVES COUNTY

Cunningham et al's No. 1 Wright, 1,320 ft. from S and W Sec. 58, Cassel's Sur.—Spudded and S.D.

F. McDorman et al's No. 1 Ray Roberts et al, 2,310 ft. from S and E lines of Sec. 22, Blk. 59, P.S.L. Sur.—Shut down 65 ft.

James & Milton's No. 1 Patterson, 330 ft. from N and W of Sec. 21, Blk. 73—Shut down 3,320 ft. (S.L.M.).

Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur.—S.D. 5,044 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 519—S.D. 2,700 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur.—Shut down 4,500 ft.; to resume drilling.

Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur.—S.D. 5,060 ft.

George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur.—S.D. 5,053 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur.—S.D. 5,041 ft.

Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W Sec. 68, Blk. 3, H.&G.N. Sur.—Spudded and S.D.

Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 153, Blk. 97, H.&T.C. Sur.—Drlg. 3,662 ft.

Simon & Brock et al's No. 1 Cruse, 2,310 ft. from S and E Sec. 119, Blk. 97, H.&T.C. Sur.—S.D. 2,500 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M-K-T Sur.—S.D. 2,669 ft.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur.—Fishing for tools 3,150 ft.

Miller Bros.' No. 1 Allison & Burke, C NW cor. Sec. 10, Blk. 176, T.&P. Sur.—S.D. 120 ft.

Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S Sec. 26, Blk. 161, G.C.&S.F. Sur.—S.D. 6,120 ft.

Jones et al's No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur.—S.D. 2,545 ft.

Sides et al's No. 1 Phelps, 2,157 ft. from N and 2,482 ft. from W Sec. 5, G. W. Turley Sur.—Spudded 75 ft.

TOM GREEN COUNTY

Andrews' No. 1 Pugh, 250 ft. from N and 9,134 ft. from E, James Eldridge Sur. No. 73—Shut down 453 ft.

Belding & Dutton's No. 1 Norsworthy, 1,640 ft. from S and 587 ft. from E of John McNeese Sur.—S.D. 760 ft; S.O. and gas 735 ft.

Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur.—S.D. 1,994 ft.

Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2—S.D. 200 ft.

UPTON COUNTY

T. P. Coal & Oil Co.'s No. 2 Shirk, 1,650 ft. from S and 330 ft. from E of Sec. 1, Blk. 3, M.-K.-T. Sur.—Top pay 2,425 ft.; drlg. 2,460 ft.; 1,500 ft. oil in hole.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft.—S.D. 5,360 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft.—S.D. 6,780 ft.

WARD COUNTY

Abell Bros.' No. 1 Sloan, 330 ft. from NW and NE Sec. 24, Blk. 5, H.&T.C. Sur.—Drlg. 710 ft.

Alpine Oil & Dev. Co.'s No. 4 J. F. Boogher, 150 ft. from SE line and 150 ft. from the SW line of Tract 16, Sec. 11, Blk. 5, H.&T.C. Sur.—Rigged up.

Atlantic O. & P. Co.'s No. 1 Archenhold, 2,310 ft. from NE line and 330 ft. from NW line of Sec. 23, H.&T.C. Sur., Blk. 5—Drlg. 1,978 ft.

Boogher's No. 1 fee, 335 ft. from SE and 3,553 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur.—Drlg. 1,425 ft.

Bradford-Bentley's No. 1 Beatty, 330 ft. from SW and NW of Sec. 3, Blk. 34, H.&T.C. Sur.—Drlg. 2,263 ft.

Eppenauer's No. 1 Purcell, 365 ft. from SW and 1,650 ft. from SE of Sec. 17, Blk. 34, H.&T.C. Sur.—Drlg. 480 ft.

H. V. Greer's No. 1 Carr, 150 ft. from NW and 510 ft. from SW Sec. 12, Blk. 5, H.&T.C. Sur. ..... Spudded and S.D
Gulf Production Co.'s No. 17-B Hutchings, 330 ft. from N and 1,650 ft. from W of S 370 acres of Sec. 5, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 1,186 ft.
Hankinson et al's No. 1 Emery, 3,090 ft. from SE and 510 ft. from SW Sec. 26, Blk. 5, H.&T.C. Sur. ..... S.D. 2,238 ft.
Moran & Burkhart's No. 2 J. T. Sweatt et al, 3,810 ft. from the NE line and 1,170 ft. from the NW line of Sec. 12, Blk. 5, H.&T.C. Sur. ..... Shut down 150 ft.
Moran & Miles' No. 1 Boogher, 3,603 ft. from NE and 1,303 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur. ..... S.D. 715 ft.
Massie-Sturm's No. 1 Green, 330 ft. from NW and SW Sec. 4, Blk. 34, H.&T.C. Sur. ..... Location.
R. F. Owen's No. 1 Lee, 1,344 ft. from NW and 4,533 ft. from SW Sec. 1, J. Howe Sur. ..... Drlg. 640 ft.
Prairie Oil & Gas Co.'s No. 2 Edmonson, 330 ft. from NW and SW of Sec. 23, Blk. 5, H.&T.C. Sur. ..... Cellar.
Rector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 22, Blk. A, G.M.M.B.&A. Sur. ..... S.D. 3,602 ft.
Paul Ryan et al's No. 1 J. S. Reynolds, 4,110 ft. from NE line and 150 ft. from NW line, Sec. 12, Blk. 5, H.&T.C. Sur. ..... Drlg. 2,090 ft.
Sadderth & Carey's No. 1 J. H. Boogher et al, 150 ft. from SW and SE lines of Lot 24, Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 55 ft.
Stanolind Oil & Gas Co.'s No. 1 Brown, 330 ft. from NW and SW Sec. 26, Blk. B-29 ..... Drlg. 2,422 ft.
Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ..... Total depth 4,666 ft.; to run 5 3-16-in. casing.
White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 8, Blk. 32, H.&T.C. Sur. ..... S.D. 755 ft.

WINKLER COUNTY

Liner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor. Sec. 2, Blk. B-5 ..... S.D. 4,640 ft.
Richardson's No. 1 Sealy, 330 ft. from S and W of Sec. 92, Blk. A, G.M.M.B.&A. Sur. ..... Rig.
Siel Richardson's No. 1 S. M. Halley, 330 ft. from the S line and 1,650 ft. from the E line, Sec. 25, School Blk. B-12 ..... Material on ground.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 26)

Mid-Kansas Oil & Gas Co.'s No. 1 Carpenter, 330 ft. from S and 990 ft. from W, Sec. 37, Blk. 25, H.&G.N. Drlg. 275 ft.
Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 26, H.&G.N. Sur. ..... S.D. 2,619 ft
Nipper et al's No. 1 Morse, 330 ft. from N and E, Sec. 1, Blk. 26, I.&G.N. Sur. ..... S.D. 2,365 ft.
Prairie Oil & Gas Co.'s No. 1 Morse, 417 ft. from N and 453 ft. from E of Sec. 4, Blk. 26, H.&G.N. Sur. Drlg. 1,580 ft.
Pulse-Shell Pet. Corp.'s No. 1 Wright, 330 ft. from S and W of Sec. 13, Blk. 3, I.&G.N. Sur. ..... Standardizing 2,643 ft.
Skelly Oil Co.'s No. 2 Heaston, 330 ft. from S and E N half NE, Sec. 164, Blk. 3, I.&G.N. Sur. ..... S.D. 3,225 ft; 300 ft. oil in hole; top pay 3,140 and 3,180 ft.
Saunders et al's No. 2 Sullivan, 322 ft. from W and 231 ft. from NE, 160 ft. S, 264 ac. of N½, Sec. 136, Blk. 3, I.&G.N. Sur. ..... Will plug back to 3,275 ft. and shoot.
Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9 H.&G.N. Sur. ..... Drlg. 560 ft.
Tarber's No. 1 Saunders, 330 ft. N and W, Sec. 3, Blk. 1, B.B.&S.F. Sur. ..... Location.
Quicksand Oil Co.'s No. 1 Chapman, 250 ft. from N and E, Sec. 69, Blk. 25, H.&G.N. Sur. ..... S.D. 1,835 ft.
Vulcan Corp.'s No. 1 Carpenter, 330 ft. from S and E, Sec. 25, Blk. 25, H.&G.N. Sur. ..... Drlg. 1,820 ft.

HUTCHINSON COUNTY

Danciger O. & R. Co.'s No. 1 Johnson, 330 ft. N and W, SE, Sec. 34, Blk. Y, A.&B. Sur. ..... Spudded and S.D
Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. .... S.D. 450 ft.
Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ..... S.D. 3,016 ft.
Smith & McDaniel et al's No. 4 Pitcher, 990 ft. from S and 330 ft. from W, Sec. 19, Blk. M-21. Sur. ..... S.D. 2,672 ft.
Smith & Daniels' No. 3 Pitcher, 990 ft. from S and 330 ft. from E, Sec. 19, Blk. M-21, T.C.R.R. Sur. ..... T.D. 3,152 ft; pay 3,070 ft; pumped 170 bbls.
Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... Top pay 3,070-95 ft; 500 ft. oil in hole; S.D. 3,115 ft.
Timms-Deatch's No. 4 Moore, 330 ft. N and W, Sec. 124, Blk. 4, I.&G.N. Sur. ..... Rig.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... T.D. 5,003 ft.

MOORE COUNTY

Gulf Prod. Co.'s No. 1 Burnett, 330 ft. from N and W, Sec. 356, Blk. 44, H.&T.C. Sur. ..... Drlg. 3,010 ft.
Interstate's No. 1 Nield, C NE, Sec. 18, Blk. 44, H.&T. C. Sur. ..... Rig up.
Magnolia Pet. Co.'s No. 1 Neild, 330 ft. from S and E of N½, Sec. 361, Blk. 44, H.&T.C. Sur. ..... Rigging up rotary.
Pollard et al's No. 1 Hall, 330 ft. S and E, NE, Sec. 131, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.
Sunray Oil Co.'s No. 2 Jones, 330 ft. N and W, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.
Texas Interstate P. L. Co.'s No. 1-23 Thompson, C N½ NE, Sec. 23, Blk. 44, H.&T.C. Sur. ..... Location.
Texas Interstate P. L. Co.'s No. 1-37 Sneed, C NW, Sec. 37, Blk. 6-T, T.&N.O. Sur. ..... Location.
Texhoma Natural Gas Co.'s No. 2 Coon, center of Sec., Sec. 151, Blk. 44, Sur. ..... Drlg. 2,250 ft.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 530 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... S.D. 400 ft.
Chambers et al's No. 1 Herring, CNL, Sec. 20, Blk. 8, G.C.&S.F. Sur. ..... S.D. 2,945 ft.

PARMER COUNTY

Magnolia Pet. Co.'s No. 1 Wilson, 330 ft. from N and W of SE, Sec. 73, H. Kelly Sur. ..... Drlg. 1,370 ft.

ROBERTS COUNTY

Chicken Creek Oil Co.'s No. 1 Ledrick, 330 ft. N and W, Sec. 55, Blk. C, G.&M. Sur. ..... Standardizing 2,466 ft.
Travis et al's No. 1 Cunningham, 330 ft. S and W, Sec. 74, Blk. M-3, H.&G.N. Sur. ..... S.D. 2,690 ft.

WHEELER COUNTY

Clarity et al's No. 1 Porter, 330 ft. S and W, SE, Sec. 2, Blk. A-9 H.&G.N. Sur. ..... S.D. for 6-in. csg. 2,150 ft.
Devore & Robinson's No. 1 Sitter, 2,310 ft. from S and E of E½ of Sec. 33, Blk. 24, H.&G.N. Sur. ..... Rigging up to drill deeper from 2,193 ft.

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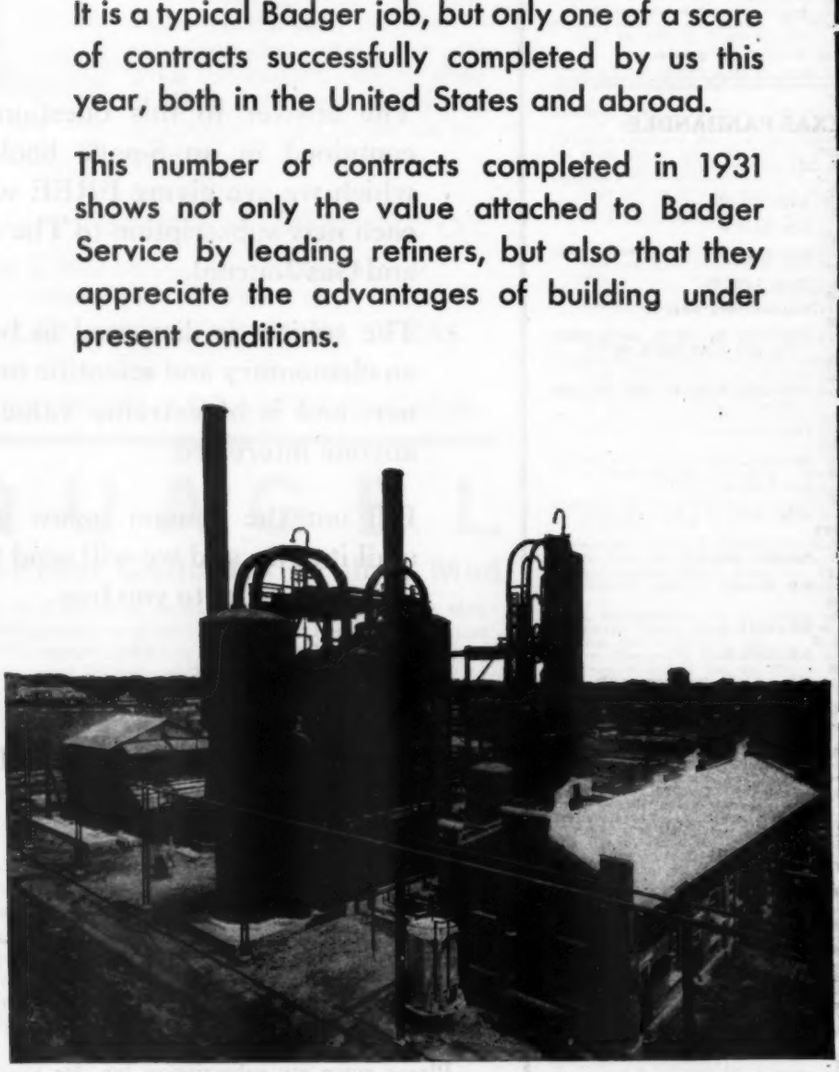
THE picture below shows an atmospheric topping unit and an atmospheric and vacuum re-run unit recently completed by us.

It is a typical Badger job, but only one of a score of contracts successfully completed by us this year, both in the United States and abroad.

This number of contracts completed in 1931 shows not only the value attached to Badger Service by leading refiners, but also that they appreciate the advantages of building under present conditions.



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Associated Oil Co.
Penzoil Company
Independent Refining Co.
Gulf Refining Co.
Tidal Refining Co.
Continental Oil Co.
Anglo-Mexican Petroleum Co. Ltd.
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Magnolia Petroleum Co. of Texas
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Brief Items for Petroleum Refiners

LOWER RATES ARE ASKED BY REFINING COMPANIES

Action looking to a reduction of freight rates on petroleum and its products from Oklahoma and Texas refining points to points on the Mississippi River from Fort Madison, Iowa, southward to New Orleans, La., has been taken by the Bell Oil and Gas Co., with plants in Grandfield, Okla., and Panama and Longview, Tex.; Anderson-Pichard Oil Corp. and Coltex Refining Co., with plants in Cyril, Okla., and Colorado, Tex., and Cosden Oil Co., with a plant in Big Spring, Tex.

The movement for readjustment of freight rates is embodied in a letter sent to the Missouri-Kansas-Texas, St. Louis-San Francisco, Missouri Pacific, Santa Fe, Rock Island and Louisville & Nashville railroads and signed by the traffic managers of the refining companies named. It reads as follows:

"Please docket for consideration by the Southwestern Freight Bureau and Western Trunk Lines Committee, proposal covering the establishment of rates on petroleum oils and its products from Oklahoma and Texas refining points to principal Mississippi river points from Fort Madison, Iowa to New Orleans, La., for example, St. Louis, Memphis, Vicksburg, Baton Rouge, etc., for movement from such Mississippi river points by barge lines to destinations on the Mississippi and Ohio rivers, rate not to exceed the coastwise rate from the points of origin in Oklahoma and Texas now applicable to Gulf ports when for coastwise movement.

"Distances and traffic conditions to the Mississippi river points are comparable with distances from the same origin in Oklahoma and Texas to Gulf ports, and therefore the application of coastwise rates should apply to these points.

"Approval of the foregoing will allow us to meet gasoline pipe line competition to the Mississippi river territory and restore movement of gasoline to Southwestern lines that has been lost to the pipe line, and permit us to serve points not now possible and also to continue to serve points that it will not be possible to serve when the rates prescribed in the 17,000 Part 4A become effective.

"Please handle this as an emergency, and in the event of approval handle with the Interstate Commerce Commission for publication of rates on short notice. Further, a public hearing is desired in connection with this proposal.

"The foregoing proposal has been concurred in by the majority of the Board of Directors of the Mid-Continent Rail Shippers' Association, and the entire membership is being circularized with the request that they concur directly to you or authorize us to act in their behalf."

REFINERY INCORPORATION

CHATHAM, Ontario, Nov. 28.—Announcement is made of the incorporation under Alberta charter of Maple Leaf Petroleum, Ltd., to take over the Maple Leaf refinery at Coutts, Alberta. The company is incorporated for 500 000 no par shares with registered office at Coutts. R. R. Davidson of Lethbridge is named as president and John B. Akolt of Denver, Colo., as secretary-treasurer.

MRS. J. O. H. BENNETTE DEAD

Mrs. J. O. H. Bennette, mother of Howard Bennette, managing director of the Western Petroleum Refiners' Association, with offices in the Cosden Building, Tulsa, died last week in her home in Conroe, Tex. Funeral services were held in Conroe.

BRITISH REFINERS REDUCE CRUDE TO STILLS AND INCREASE IMPORTS

The record of the British refining industry, revealed through official statistics published recently in the Board of Trade Journal, is one of declining throughput and production, while imports of finished products have been increasing. The culmination of this trend during 1930 found the refineries operating at 30 per cent of capacity and supplying less than one-fifth of the British gasoline demand. Editorial comment in the British trade press, consequently, centers around the need for more adequate protection of home production.

British refineries have an annual crude throughput capacity of about 40,000,000 bbls., while the crude treated during 1930 was only slightly in excess of 13,000,000 bbls. Imports of gasoline during 1930 were nearly double those of 1927, while domestic gasoline production showed an actual decrease. The record of continually expanding gasoline imports would indicate that the purchase of finished gasoline in foreign producing centers was preferable economically to the increasing of local refining facilities and the consequent importation of increased quantities of crude.

During 1927, the peak year in British refining, the local output supplied 32.6 per cent of the British gasoline demand. This ratio was reduced to 22.9 per cent in 1928; to 21.8 per cent in 1929; and to 18.9 per cent in 1930. After the drop in local gasoline production from 6,600,000 bbls. in 1927 to 5,540,000 bbls. in 1928, the annual production of gasoline remained constant at approximately the 1928 figure, while gasoline imports, totaling nearly 15,000,000 bbls. in 1927, increased to 20,700,000 bbls. in 1928; to 23,000,000 bbls. in 1929 and to 27,000,000 bbls. in 1930. British gasoline demand meanwhile increased 50 per cent. The relationships between local production, imports, exports and home consumption are shown in the following table:

BRITISH GASOLINE PRODUCTION, IMPORTS, EXPORTS AND CONSUMPTION
(Figures in thousands of 42 gal. barrels)

	1927	1928	1929	1930
Imports	14,966	20,694	23,060	27,023
Home production	6,600	5,540	5,517	5,760
Total available	21,566	26,234	28,577	32,783
Total exports	1,297	1,989	3,223	2,363
Retained for home consumption	20,269	24,245	25,354	30,420
Ratio, home production to demand	32.6%	22.9%	21.8%	18.9%

The output of British refineries during the period is shown in the following table, the throughput of petroleum including both crude oil and partially refined oils:

THROUGHPUT AND OUTPUT, BRITISH REFINERIES, 1927-1930
(Figures in thousands of 42 gal. barrels)

	1927	1928	1929	1930
Throughput:				
Petroleum	21,577	18,549	18,997	18,649
Shale oil	1,234	1,231	1,209	1,194
Total	22,811	19,780	20,206	19,843
Output:				
Gasoline	6,600	5,540	5,517	5,760
Kerosene	2,231	2,403	1,909	1,411
Gas oil	1,123	846	880	820
Lubricants	400	443	620	694
Fuel, Diesel oils	9,751	7,894	8,197	7,746
Other liquid prods.	17	31	143	309
Residue and losses	2,689	2,623	2,940	3,103
Total	22,811	19,780	20,206	19,843

Approximately one-sixth of the petroleum refined consists of heavy oils which have been topped or partially refined and lighter unfinished distillates. The quantity of crude available for refining is shown in the following table, segregating crude oil imports by countries of origin:

BRITISH CRUDE OIL IMPORTS, BY ORIGIN, 1927-1930
(Figures in thousands of 42 gal. barrels.)

Origin:	1927	1928	1929	1930
Persia	13,697	11,746	9,714	9,680
Venezuela	2,866	1,183	1,849	2,445
Colombia	737	820	1,357	180
Trinidad	.....	157	597	700
Mexico	1,294	351	394	.....
Rumania	.....	29	20	.....
United States	337	17	.....	163
Others	63	43	.....	3
Total	18,994	14,346	13,931	13,171

MAJOR CALIFORNIA REFINERS PRODUCE BULK OF CRUDE OILS

Since the beginning of 1930 the seven major oil companies of California have been producing about 60 per cent of the crude oil they handle and purchasing the remaining 40 per cent. A purchasing market of secondary proportions has been growing up among so-called independents, which companies in the first half of this year produced about 80 per cent of the crude oil they handled and purchased the remaining fifth.

With the increase in proration, the purchasing market has been expanding, says the Wall Street Journal. Up to 1930 the majors were almost the only important California outlet for crude oil produced by organizations without refining capacity. During 1927-28-29 the seven majors—Standard, Union, General Petroleum, Associated, Richfield, Shell and The Texas Company—bought a little more than a third of the oil they handled. In 1929 the independents bought only about 4 per cent.

These figures are based upon calculations of some of the large refiners and producers and upon statistics compiled by them, which, while they do not entirely square with general production figures of the American Petroleum Institute and the U. S. Bureau of Mines, are close enough to the reports of these agencies to be taken as reliable.

They are of first importance in judging background facts of the Coast industry, which have heretofore not been available outside the industry itself. In a large measure they account for the desire of forces working for oil price stability to see better buying levels for crude, since such levels improve the position of non-refining producers, strengthen contracts for oil and help prevent escape of oil into nonco-operative hands by sustaining the proration basis.

Largest Crude Buyers

Of the purchasers, Standard of California, Union and Richfield have been the largest, followed in turn by General Petroleum, Associated, Shell and Texas in the order named. Of the so-called independents, Hancock and Rio Grande have been the largest buyers, although moderate purchasing has also been done by Wilshire, Western Oil & Refining, Sunset Pacific, Macmillan and a few others.

At the average price of crude oil last year as figured by the Department of Commerce, purchased oil cost buying companies around $98,000,000 in 1930.

In 1929 and 1930 Richfield, because of its relatively limited production, was the largest purchaser in California. In the first half of this year Standard took

(Continued on Page 102)

RECEIVERSHIP FOR RIO GRANDE OIL CO. ASKED

LOS ANGELES, Calif., Nov. 30.—A receivership in equity for the Rio Grande Oil Co., a Texas corporation, with its principal offices in this city, was asked in Federal Court here by the Barnsdall Oil Co. of California and the Interstate Equities Corp., both Delaware corporations.

Rio Grande's assets were estimated in excess of $15,000,000, comprising refineries, producing properties, pipe lines, contracts to purchase petroleum, service stations and appurtenances in Texas, California, Arizona, Nevada and New Mexico. Attorney Leroy Edwards, for the complainants, said the petition was to conserve the company's assets and present controversies with creditors. Consent to the receivership was filed by L. M. Lockhart, secretary of Rio Grande.

Liabilities listed include $314,000 in outstanding mortgages and $1,200,000 in unsecured debts. A judgment of $2,137,500 ordered recently in Superior Court here for Murray Shewitt of New York, a broker, was mentioned, although this judgment has not been entered so far. The petition avers that all outstanding capital stock of the Rio Grande of Texas is owned by Rio Grande Oil of Delaware, which on September 10, 1930, received from the defendant company a promissory note for $11,500,000 payable on September 3, last. The petition states further that this note and 30,000 shares of defendant company stock were given by Rio Grande to the Interstate Equities Corp. to secure a $5,000,000 loan. Of this indebtedness, $3,000,000 is still outstanding, it was said.

BOWLING GREEN PLANT TO BEGIN OPERATIONS

BOWLING GREEN, Ky., Nov. 30.—Operations are expected to start soon at the plant of the Bowling Green Refining Co., following the announcement of O. C. Caldwell, manager of the Illinois Pipe Line Co., that his company was about to begin gathering oil for delivery to the refinery.

The refinery will have a capacity of approximately 1,800 bbls. of crude a day. It is estimated by the pipe line company officials that 17,000 bbls. of crude are now aboveground, stored in tanks on various leases in Allen, Warren and Simpson Counties, which compose the Bowling Green district. The field has been shut down since March 2 owing to overproduction.

George McGinley is president and general manager of the Bowling Green company; J. H. Wright, vice president; H. T. Downing, secretary; M. A. Arwin, treasurer; and S. E. Davis, plant superintendent.

TO DISMANTLE REFINERY

SAN ANTONIO, Tex., Nov. 28.—The Grayburg Oil Co.'s refinery in the southern part of this city will be dismantled by August 1, 1932, according to a statement of the company officials made to the city commission of San Antonio in an effort to get the assessment reduced. The commission granted a reduction from $100,000 to $61,000. Refinery officials rendered it for taxation at $56,564. Future plans of the Grayburg company have not been announced, but it is known that the company owns a considerable tract of land south of San Antonio and outside of the city limits available for erecting a refinery. Capacity of the plant at this time is given as 600 bbls. of crude daily. Some months ago the capacity was 3,500 bbls.

Manufacture of Natural Gasoline

FACTORS IN CONTROL OF ABSORPTION OPERATION

The aim of natural gasoline plant operations is to extract economically all the hydrocarbon fractions that can be used in the finished gasoline, according to an article appearing in the current issue of The Booster, published by the Standard Gasoline Co. The primary operation in obtaining this efficiency is careful adjustment and control of absorption equipment which consists of oil and spray water circulating machinery, cooling towers, scrubbers and absorption towers.

The relative importance of different control features can be realized by consideration of the following facts:

1. When the oil circulation is 12 per cent below normal, a 1 per cent loss in production results.

2. Ten degrees additional oil cooling will permit a 19 per cent decrease in oil circulation.

3. Oil circulation beyond that required for maximum production not only costs money to generate, but also increases plant vapor load.

With the above facts in mind an efficient absorption system may be defined as a system in which maximum oil cooling is obtained and the minimum oil circulation without loss of production maintained.

To accomplish this continuous inspection and attention is necessary. The items which should receive special thought are:

1. Cleanliness and adjustment of cooling tower sprays to give even spray water distribution.

2. Cleanliness of spray water pump inlet screens.

3. Adjustment of cooling tower louvres to give the maximum flow of air through the tower consistent with weather conditions.

4. Steady oil circulation adjusted to the minimum without loss of production.

5. Careful adjustment of gas and oil flow to the various absorbers to give equal distribution.

6. Cleanliness of the absorbers themselves with particular care as to accumulation of water.

7. Kidney bean liquid level controls adjusted to hold steady levels with an even flow of oil to the distillation equipment.

BELL COMPANY STARTS PLANT AT MT. PLEASANT

MOUNT PLEASANT, Mich., Nov. 28. The Bell Gasoline Co., former operator in the old Muskegon Field, has commenced production with its natural gasoline plant located in the far east oil pool of the Mount Pleasant Field.

At present the plant is hadling casinghead gas from six oil wells in the east pool, processing around 2,000,000 feet of casinghead gas daily. About .8 gallon of gasoline is refined from every 1,000 cubic feet of gas.

The gasoline product from the casinghead gas to be of commercial value has to be mixed with less volatile fuels. The product is to be sold to crude oil refineries.

Production probably will be stepped up to around 6,000,000 or 10,000,000 feet of gas later, company officials said. The plant is the first of its kind ever to operate in the Mount Pleasant Field. The residue gas after the gasoline has been extracted from the casinghead gas is not being saved for commercial uses at the present time.

TO OFFER STANDARD EMPLOYES COURSE COVERING GAS ENGINES

The Standard Gasoline Co., a subsidiary of the Standard Oil Co. of California, and operating its natural gasoline plants in California, has completed a heavy duty gas engine course as a part of its educational program and it is now available to employes. The Standard company for several years has prepared special courses for its employes designed to aid them in securing fundamental technical data. The courses are available only to the employes of the Standard company.

The new course is covered in 15 lessons extending over 30 weeks. The cost is $9. The heavy duty engine course was written by E. W. Frey and collaborated in by several members of the company's engineering and supervisory staff, is entirely new and has been especially developed to fill the requirements of men engaged in the natural gasoline industry. Not only are gas engines and their operation treated in detail, but the subject of compressors is also fully covered.

A great deal of attention has been paid to the assembling and editing of the lessons which contain approximately 160 pages of subject matter and illustrative prints and diagrams. The accompanying outline briefly pictures some of the important points and principal phases of gas engine and compressor operation handled in the various lessons.

Beginning with the fundamentals of the internal combustion engine, the relationship between heat and power is discussed and the question of friction versus efficiency analyzed, together with the two and four-stroke cycle of gas engine operation. Fuels, their relative values and methods of use are thoroughly explained with the various mechanical adjuncts such as mixing devices, governors, etc., necessary to the proper control.

The important subject of lubrication is treated in considerable detail, requirements for each particular service being discussed together with selection of the proper lubricants and the problem of oil cleaning. Ignition is covered in a thorough manner, sufficient fundamental principles of electricity being given to make the operation of the different types of ignition devices readily understood.

Auxiliary engine equipment, including air starters, fuel pressure regulators, mufflers and water circulating pumps is made the subject of one entire lesson, bringing out some important points on these different items. The care, maintenance and efficient operation of the unit from the time of setting it up to completion of its function are very thoroughly detailed in the next four lessons. Approved methods covering bearings, timing, starting, valve setting and safety, while varied, are handled in such a way as to make these points quite clear to the student and operator.

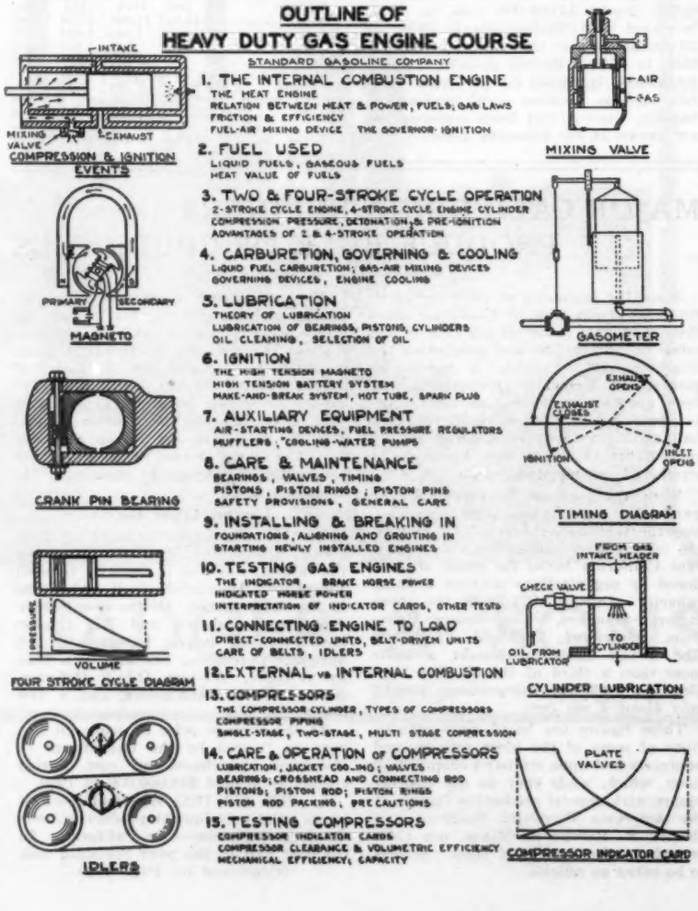
Installation

A departure from ordinary courses is the chapter on installation and breaking-in. This work, usually a construction department function, may, if not properly done, result in difficulties the reasons for which may be hard to discover. This chapter is of particular interest to all gas engine operators.

Testing is perhaps not as thoroughly understood as is desirable. The exposition of this subject will clarify the equipment and methods used and show how we may not only secure full capacity but learn, through this method of diagnosis many conditions which may prevent full efficiency.

Another phase of mechanics having a decided bearing on efficient operation is the manner in which the engine is connected to the load. The chapter on belts, idlers and direct connected units will be found to carry a lot of valuable information, while a comparison of power developed in internal and external combustion engines explains some points not always well understood.

The work would be incomplete without some mention of compressors. The last three lessons are concerned entirely with this subject and cover the many phases of its function in the same complete manner as engines have been treated in the preceding chapters.



CROSBIE AND MORAN TO BUILD IN EAST TEXAS

Crosbie & Moran, Inc., have completed plans for the construction of a natural gasoline plant in the East Texas Field. The plant, which will have a capacity of 15,000 gallons daily, will be located in the Kilgore Pool in the Isaac Reynolds Survey on a lease owned jointly by the Stanolind Oil & Gas Co. and J. E. Crosbie, Inc.

Construction work on the plant will start immediately. The company has contracted the gas from several leases near the plant. Crosbie & Moran, Inc., operate plants in Oklahoma with headquarters in Tulsa.

It was also announced during the week that the Gladewater Gasoline Co. will build a natural gasoline plant at Gladewater in East Texas. The plant will have a capacity of 7,000 gallons daily. The company owns and operates a small refinery at Gladewater.

HUMBLE TRANSPORTING PRODUCT BY PIPE LINE

The Humble Oil & Refining Co., which has a gasoline plant in the Kilgore Pool and one in the London area of East Texas, the two plants processing about 15,000 gallons of natural gasoline per day, is running this gasoline into the Humble Pipe Line Co.'s trunk lines from the district.

This method of handling the gasoline raises the gravity of the crude oil and reduces the viscosity of the crude, making it easier to pump. The Gulf Pipe Line Co. may also run the gasoline from its plant when it is completed and in operation.

Vapor wall installed on the upper level of Standard Gasoline Co. plant to prevent a possible gravitation of vapors from the distillation equipment to the engine and boiler room below.

ALCO

DESIGNS FOR THE FUTURE

TO ANTICIPATE the trend toward more exacting market specifications for refinery products is a fundamental policy of ALCO design. With a technical staff trained in the basic principles of modern refining, and with broad experience in all phases of plant operation, ALCO is prepared to assist the refining industry with its changing engineering and process problems.

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REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Dec. 1		Nov. 24		Nov. 17	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.03¾	.04	.04	.04½	.04¼	
56-58 450 endpoint	.03⅝	.03¾	.04	.04¼	.04⅛	.04¼
58-60 U. S. Motor	.03¾	.04¼	.04¼	.04⅜	.04⅜	.04¾
60-62 430 endpoint	.03⅞	.04¼	.04¼	.04⅜	.04½	.04¾
60-62 400 endpoint	.04	.04½	.04⅜	.04⅞	.04½	.04⅞
64-66 375 endpoint	.04½	.05	.04⅜	.05	.05	.05¼
68-70 360 endpoint	.04⅝	.05¼	.04⅞	.05⅛	.05¼	.05¼
64-66 437 endpoint (blend)	.03¾	.04	.04	.04¼	.04¼	.04½
NORTH TEXAS—						
50-52 450 endpoint	.03¾		.04		.04⅛	
58-60 450 endpoint	.03½	.03¾	.03⅞	.04	.04	
58-60 U. S. Motor	.03¾	.04	.04⅛	.04½	.04¼	.04½
60-62 400 endpoint	.04	.04½	.04¼	.04½	.04⅜	.04½
64-66 390 endpoint	.04¼	.04½	.04½	.04⅝	.04⅜	.04⅞
64-66 375 endpoint	.04½	.04¾	.04⅜	.04⅞	.04⅞	.05⅛
68-70 360 endpoint	.04⅝	.05	.04⅞	.05	.05	.05¼
64-66 437 endpoint (blend)	.03¾	.04	.04		.04	
***NORTH LOUISIANA—**						
58-60 U. S. Motor	.04¼	.04½	.04⅜		.05	
***ARKANSAS—**						
58-60 U. S. Motor	.04¼	.04½	.04⅜		.05	
PENNSYLVANIA—						
52-54 Naphtha	.04¼		.04¼		.04½	
54-56 Naphtha	.04¼	.04⅜	.04¼	.04½	.04¼	.04½
58-60 Gasoline	.04½	.04¾	.04½	.04¾	.04½	.04¾
60 Gasoline	.04¾	.05	.04¾	.05	.04¾	.05
62 Gasoline	.05	.05¼	.05	.05¼	.05	.05¼
64 Gasoline	.05¼	.05⅜	.05¼	.05¾	.05¼	.05¾
68-70 350 endpoint gasoline	.05¾	.06	.05½	.06	.05½	.06
CALIFORNIA—						
†54-58 U. S. Motor (domestic)	.05½	.06½	.05½	.06½	.05½	.06½
58-60 400 endpoint domestic gasoline	.06	.07¼	.06	.07¼	.06	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.03⅝	.03½	.04	.04⅛	.04⅛	.04⅜
58-60 U. S. Motor	.03¾	.03⅞	.04¼	.04⅝	.04⅜	.04⅝
60-62 400 endpoint	.04	.04¼	.04⅜	.04⅝	.04⅝	.04⅞
64-66 375 endpoint	.04⅜	.04⅝	.04⅞	.05	.04⅞	.05½
68-70 360 endpoint	.04⅞	.05⅛	.05	.05¼	.05¼	.05½
64-66 437 endpoint (blend)	.03¾		.04		.04½	
GULF COAST (Export)—						
58-60 U. S. Motor	.04½		.04½		.04½	
60-62 400 endpoint	.04⅝		.04⅝		.04⅝	
61-63 390 endpoint	.04⅝		.04⅝		.04⅝	
64-66 375 endpoint	.05		.05		.05	

*Louisiana, Arkansas and Mississippi delivery. †For Pacific Coast consumption.

NATURAL GASOLINE

	Dec. 1		Nov. 24		Nov. 17	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03½	.03⅝	.04¼	.04⅜	.04⅝	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¼	.03⅜	.03⅞	.04	.04⅜	.04½
Grade B, 76-83.9, 375 e.p., rec. 85%	.03¼		.03⅞	.04	.04⅜	.04½
Grade BB, 84-92, 375 e.p., rec. 85%	.03	.03⅛	.03¾	.04	.04¼	.04⅜
Grade C, 80-92, 375 e.p., rec. 78%	.03	.03⅛	.03¾	.04	.04¼	.04⅜
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03⅜	.03½	.04¼		.04½	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¼	.03¼	.03⅞	.04	.04⅜	.04¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.03⅛		.03⅞	.04	.04⅜	.04¼
Grade BB, 84-92, 375 e.p., rec. 85%	.03		.03⅞	.04	.04⅜	.04¼
Grade C, 80-92, 375 e.p., rec. 78%	.03		.03¾	.04	.04	.04¼
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.03¼		.04¼		.04⅝	.04¾
Grade BB, 84-92, 375 e.p., rec. 85%	.03		.04		.04⅝	.04¾
Grade C, 80-92, 375 e.p., rec. 78%	.03		.04		.04⅝	.04¾
CALIFORNIA—						
75-78 375 endpoint	.05¾	.06½	.05¾	.06½	.05½	.06½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03½		.04¼		.04⅝	.04¾
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¼		.04		.04⅜	.04½
Grade BB, 84-92, 375 e.p., rec. 85%	.03		.03¾	.04	.04⅜	.04½

BURNING OIL

	Dec. 1		Nov. 24		Nov. 17	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.02⅛	.02¼	.02⅛	.02¼	.02¼	.02¼
42-44 water white kerosene	.02¼	.02½	.02¼	.02⅜	.02¼	.02⅜
NORTH TEXAS—						
41-43 water white kerosene	.02⅛		.02⅛		.02⅛	
40-41 water white kerosene	.02	.02⅛	.02	.02⅛	.02	
***NORTH LOUISIANA—**						
41-43 water white kerosene	.03		.03		.03	.03¼
***ARKANSAS—**						
41-43 water white kerosene	.03		.03		.03	
PENNSYLVANIA—						
43 Kerosene prime white	.03¾		.03½		.03½	
45 Kerosene water white	.03⅞	.04	.03⅝	.03¾	.03⅝	.03¾
46 Kerosene water white	.04		.03⅞	.04	.03⅞	.04
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04½	.05½	.04½	.05½	.04½	.05½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.02⅛	.02¼	.02⅛	.02¼	.02⅛	.02¼
42-44 water white kerosene	.02¼	.02½	.02¼	.02½	.02¼	.02½
GULF COAST (Export)—						
41-43 prime white	.04¼	.04½	.04¼	.04½	.04¼	.04½
44 prime white	.04	.04¼	.04	.04¼	.04	.04¼

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	Dec. 1		Nov. 24		Nov. 17	
OKLAHOMA (Group 3)—						
Below 18 gravity Fuel Oil (per bbl.)	.22½	.27½	.25	.30	.25	.30
18-22 Fuel Oil, per bbl.	.25	.30	.27½	.35	.30	.35
20-22 Fuel Oil, per bbl.	.30	.35	.30	.35	.32½	.37½
22-26 Fuel Oil, per bbl.	.35	.40	.35	.40	.35	.40
24-26 Fuel Oil, per bbl.	.37½	.45	.40	.45	.40	.45
26-30 Fuel Oil, per bbl.	.42½	.47½	.45	.50	.45	.50
28-30 Fuel Oil, per bbl.	.50	.55	.50	.55	.50	.55
32-36 Gas Oil (industrial)	.01⅜	.01½	.01⅜	.01½	.01⅜	.01½
32-36 Gas Oil (straw color, high cold test)	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
32-36 Gas Oil (straw color, low cold test)	.01⅝	.01¾	.01⅝	.01¾	.01⅝	.01¾
36-38 Distillate	.01¾	.01⅞	.01¾	.01⅞	.01¾	
38-40 Straw Distillate	.01¾	.02	.01¾	.02	.01¾	.01⅞

Note—Fuel oils over 40 cold test generally 5 to 10 cents per barrel less when available.

NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.40	.45	.35	.45	.35	.45
24-26 Fuel Oil, per bbl.	.45	.50	.40	.45	.40	.45
32-36 Gas Oil (industrial)	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
38-40 Straw Distillate	.01⅛	.01¾	.01⅛	.01¾	.01⅛	.01¼
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.35	.50	.35	.50	.40	.50
30-32 Gas Oil (low cold test)	.02	.02⅛	.02		.02	
***ARKANSAS—**						
33-36 Distillate	.02	.02¼	.02		.02	
30-32 Gas Oil	.01¾	.02	.01¾	.02	.01¾	.02
16-22 Refinery Fuel Oil, per bbl.	.35	.50	.35	.50	.35	.50
GULF COAST (South Texas)—						
Gas Oil	.02¼	.02½	.02¼	.02½	.02¼	.02½
Bunker C Fuel (cargo lots), per bbl.	.40	.45	.40	.45	.40	.45
Bunker C Fuel (small lots)	.45		.45		.45	
PENNSYLVANIA—						
30-34 Gas Oil	.02½		.02⅝		.02⅝	
36-40 Gas Oil	.02½	.02⅝	.02⅝	.02¾	.02⅝	.02¾
CALIFORNIA—						
‡42-45 480 endpoint engine distillate	.07	.08	.07	.08	.07	.08
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.60	.80	.60	.80	.60	.80
15-19 Fuel Oil, cargo lots (tidewater), bbl.	.55	.75	.55	.75	.55	.75
†15-19 Fuel Oil (f.o.b. tank cars), bbl.	.45	.75	.45	.75	.45	.75
27 plus Diesel, per bbl.	.80	.95	.80	.95	.80	.95
30-34 Gas Oil	.75	.95	.75	.95	.75	.95
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.27½	.32½	.32½	.37½	.32½	.37½
22-26 Fuel Oil, per bbl.	.35	.40	.37½	.42½	.37½	.42½
28-30 Fuel Oil, per bbl. (zero)	.52½	.57½	.52½	.57½	.52½	.57½
32-36 Gas Oil (industrial)	.01⅜	.01⅝	.01⅝	.01¾	.01⅝	.01¾
32-36 Gas Oil (zero)	.01¾	.01⅞	.01⅞	.02⅛	.01⅞	.02⅛
38-40 Straw Distillate	.01⅞	.02	.02	.02¼	.02	.02¼

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content. ‡For Pacific Coast consumption.

LUBRICATING OIL AND WAX

	Dec. 1		Nov. 24		Nov. 17	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.04½	.04¾	.04½	.04¾	.04½	.04¾
100 vis., 3 color, 20-25 cold test	.04	.04½	.04	.04½	.04	.04½
150 vis., 3 color, 20-25 cold test	.06¾	.07¼	.06¾	.07¼	.06¾	.07¼
150 vis., 4 color, 20-25 cold test	.06¼	.06½	.06¼	.06½	.06¼	.06½
180 vis., 3 color, 23-28 cold test	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
180 vis., 4 color, 23-28 cold test	.07¾	.08¼	.07¾	.08¼	.07¾	.08¼
180 vis., 5 color, 23-28 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
200 vis., 3 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
200 vis., 4 color, 23-28 cold test	.09	.09½	.09	.09½	.09	.09½
200 vis., 5 color, 23-28 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
240 vis., 3 color, 25-30 cold test	.11	.11¼	.11	.11¼	.11	.11¼
240 vis., 4 color, 25-30 cold test	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
240 vis., 5 color, 25-30 cold test	.09¾	.10	.09¾	.10	.09¾	.10
280 vis., 3 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
280 vis., 4 color, 25-30 cold test	.11½	.12	.11½	.12	.11½	.12
280 vis., 5 color, 25-30 cold test	.10¾	.11	.10¾	.11	.10¾	.11
Cylinder Stocks:						
600, steam refined, light green	.04	.06	.04½	.06	.04½	.06
600, steam refined, dark green	.03½	.05	.40	.05	.04	.05
190-200 vis., D color, Bright Stocks	.21	.22	.21	.22	.21	.22
150-160 vis., D color, Bright Stocks 0-10 c.t.	.19½	.20	.19½	.20	.19½	.20
150-160 vis., D color, Bright Stocks 10-25 c.t.	.19½		.19½		.19½	
150-160 vis., D color, Bright Stocks 25-40 c.t.	.19		.19		.19	
150-160 vis., E color, Bright Stocks	.18½	.19	.18½	.19	.18½	.19
Waxes:						
124-126 White Crude Scale Wax	.01⅝	.01⅞	.01⅝	.01⅞	.01⅝	.01⅞

All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½	.06	.05½	.06½	.05½	.06½
34 Sundebloom	.05	.05¼	.05	.05½	.05	.05½
36 Miners' Neutral	.05½		.05½		.05½	
150, 3 color	.16	.16½	.16½	.17	.17	.17½
180, 3 color	.19	.19¼	.19	.19½	.19	.19½
200, 3 color	.20½	.21	.21	.21½	.21	.21½
220, 3 color	.24½	.25	.23½	.25½	.23½	.26½
60 ¾ steam refined	.12½	.12¾	.13		.13¾	
650, steam refined	.15½	.15¾	.16	.16½	.16	.17½
600, Pennsylvania Flash	.16½	.17	.17	.18	.17	.19
600, E filtered	.17	.17¼	.17	.17½	.17	.17½
600, D filtered, Oil City	.21	.22	.21	.23	.21	.23½
Pennsylvania Bright Stocks below 35 c.t.	.22	.23	.22	.23	.22	.25
Pennsylvania Bright Stocks above 35 c.t.	.21	.22	.21	.22	.21½	.23
*122-124 White Crude Scale Wax	.02⅛		.02		.02	
*124-126 White Crude Scale Wax	.02⅛		.02		.02	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.05½	.05¾	.05½	.05¾	.05½	.05¾
200 vis., 3 color, pale oil	.07½	.07⅝	.07½	.07⅝	.07½	.07⅝
300 vis., 3 color, pale oil	.08¾	.08⅞	.08¾	.08⅞	.08¾	.08⅞
500 vis., 36 color, pale oil	.09⅞	.10¾	.09⅞	.10¾	.09⅞	.10¾
750 vis., 3½ color, pale oil	.11⅝	.11⅞	.11⅝	.11⅞	.11⅝	.11⅞
1,200 vis., 3½ color, pale oil	.13⅞	.14⅜	.13⅞	.14⅜	.13⅞	.14⅜
2,000 vis., 4 color, pale oil	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
200 vis., 5-6 color, red oil	.06¾	.06⅞	.06¾	.06⅞	.06¾	.06⅞
300 vis., 5-6 color, red oil	.07⅞	.08⅜	.07⅞	.08⅜	.07⅞	.08⅜
500 vis., 5-6 color, red oil	.09½	.09⅝	.09½	.09⅝	.09½	.09⅝
1,200 vis., 5-6 color, red oil	.12⅞	.13⅜	.12⅞	.13⅜	.12⅞	.13⅜
2,000 vis., 6 plus color	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
CALIFORNIA—						
130 vis., 2½-3 color	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
200 vis., 2½-3 color	.09¼	.10¼	.09¼	.10¼	.09¼	.10¼

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

300 vis., 3-3½ color	.10¼	.11¼	.10¼	.11¼	.10¼	.11¼
350 vis., 3½-4 color	.11¼	.12	.11¼	.12	.11¼	.12
450 vis., 3½-4 color	.12	.12¾	.12	.12¾	.12	.12¾
550 vis., 3½-4 color	.12¾	.13¾	.12¾	.13¾	.12¾	.13¾
Red Neutral:						
200 vis., 4½-5 color	.09¾	.10¼	.09¾	.10¼	.09¾	.10¼
300 vis., 5-6 color	.10½	.11	.10½	.11	.10¼	.11
500 vis., 4½-5 color	.12¾	.13½	.12¾	.13½	.12¾	.13½
600 vis., 6½ plus color	.13½	.14¼	.13½	.14¼	.13½	.14¼
700 vis., 6½ plus color	.14½	.15¼	.14½	.15¼	.14½	.15¼

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) EXPORT PRICES

	Dec. 1		Nov. 24		Nov. 17	
Gaso. U.S.M., 58-60, 437 e.p., 65 O.N. (min.)	.06¼	.06½	.06¼	.06½	.06¼	.06½
Gaso., U.S.M., 58-60, 437 e.p., below 65 O.N.	.05¾	.06	.06		.06	
Kerosene, water white, 41-43	.05½		.05½		.05½	
*Fuel Oil, Bunker "C"	.70		.70		.70	
†Fuel Oil, Diesel, 28-30, per bbl.	1.50		1.50		1.30	
Gas Oil, 28 gravity plus	.04		.04		.04	
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10¼	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.03½		.03½		.03½	
Refined Wax:						
120-122 a.m.p., per lb.	.02⅞		.02⅞		.02⅞	
125-127 a.m.p., per lb.	.03		.03		.03	
130-132 a.m.p., per lb.	.03½		.03½		.03½	
133-135 a.m.p., per lb.	.04		.04		.04	
135-137 a.m.p., per lb.	.04½		.04½		.04½	
Petrolatum in barrels in carload lots, per pound:						
Dark green	.01¾		.01¾		.01¾	
Amber	.02½		.01½		.02½	
Extra amber	.03		.03		.03	
Cream	.05½		.05½		.05½	
Lily white	.06½		.06½		.06½	
Snow white	.07		.07		.07	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents a barrel.

NEW YORK (BAYONNE) REFINERY PRICES

	Dec. 1		Nov. 24		Nov. 17	
600, steam refined cylinder stocks, in bbls..	.21	.22	.21	.22	.21	.22
635, steam refined	.22½	.23	.22½	.23	.22½	.23
650, steam refined	.24	.24½	.24	.24½	.24	.24½
600, Pennsylvania Flash	.25	.26	.25	.26	.25	.26
630, Pennsylvania Flash	.28	.29	.28	.29	.28	.29
900, Warren E	.24	.24½	.24	.24½	.24	.24½
900, Oil City E	.23	.23½	.23	.23½	.23	.23½
Light 140-150 Bright Stocks	.30	.31	.32	.33	.32	.33
Dark 140-150 Bright Stocks	.29	.30	.31	.32	.31	.32

LOS ANGELES EXPORT PRICES

	Dec. 1		Nov. 24		Nov. 17	
Kerosene, water white	.04	.04¾	.04	.04¾	.04	.04¾
U. S. Motor gasoline, 53-55, 437 e.p.	.04¼	.04½	.04¼	.04½	.04¼	.04½
58-60, 400 endpoint gasoline	.04¾	.05	.04¾	.05	.04¾	.05

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

East Texas (Nov. 2, 1931)† ..... $ .83
Corsicana heavy (Nov. 2, 1931)* ..... .49
Other fields..... See gravity table

†Posted by Panola Pipe Line Co., Magnolia Petroleum Co., Tidal Refining Co., Sinclair Refining Co., Gulf Pipe Line Co., Atlas Pipe Line Co. *Magnolia Petroleum Co.

EASTERN STATES
Joseph Seep Purchasing Agency
(Effective November 1, 1931)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field) (Oct. 15, 1931) $2.00
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.70
Penna. Grade Oil in Eureka Pipe Line Lines (West Virginia) 1.60
Penna Grade Oil in Buckeye Pipe Line Lines (Dec. 1, 1931) 1.40
Corning Grade Oil in Buckeye Pipe Line Co.'s line (Nov. 9, 1931) ..... .85
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931).... .60
Wayne district Oil in Cumberland Pipe Lines (April 23, 1931) 1.17

Tide Water Pipe Co.
(Effective November 1, 1931)

Bradford, Pa. $2.00
Allegany, N. Y. 2.00

Pure Oil Co.
(Effective September 12, 1931)

Cabin Creek, W. Va. $1.60
Bradford Hollow, W. Va. 1.60
Kelly's Creek, W. Va. 1.60

Pennzoil Co.
(Effective October 5, 1931)

Pennsylvania Grade Oil in National Transit Lines:
Group A $1.95
Includes Cochran, Franklin, Hamilton and Doolittle districts.
Group B $1.94
Includes Titusville district.
Group C $1.93
Includes Turkey and Tidioute districts.
Group D $1.92
Includes Bear Creek and Porkey districts.
Group E $1.90
Includes Eldenau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacy and Kinzua districts.
Price depends on length of pipe line haul to plant at Oil City.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties. See gravity table

WEST TEXAS

Iatan and Westbrook..Same as North Texas
Crane, Upton, Crockett, Howard, Glasscock, Ector, Winkler and Pecos Counties* ..... $ .50
Lea County, N. Mex.‡ ..... .50
Toborg, Pecos County, Aug. 25, 1931†.. .25

*The Texas Company, November 2, 1931; Magnolia Petroleum Co., Humble Oil & Refining Co., Gulf Pipe Line Co., same day. †Shell Petroleum Corp. ‡Humble Oil & Refining Co., The Texas Company, November 2, 1931.

GULF COAST

Grade A and Grade B classifications discontinued by leading buyers .....
.....See gravity table
Jennings, La. (Nov. 2, 1931)* ..... $ .65
Lockport, La. (Aug. 27, 1931)†.....
.....See Gulf Coast gravity table
Refugio light.....See gravity table
Refugio heavy (Nov. 2, 1931)‡ ..... .75
Markham (Nov. 2, 1931)§ ..... .67
High Island (Nov. 2, 1931)¶..... .65

*Gulf Refining Co. †Vacuum Oil Co. ‡Humble Oil & Refining. §The Texas Company. ¶Gulf Pipe Line Co.

NORTH LOUISIANA AND ARKANSAS

Smackover, Ark. (all grades) (Nov. 4, 1931) ..... $ .55
Urania, Ark. ..... See note below
Bellevue, La. (June 3, 1931) ..... $ .25
Urania, La. (Nov. 2, 1931) ..... .50
Calion, Ark. (Aug. 22, 1931)..... .52
East El Dorado, Ark. (Nov. 4, 1931)... .55
Stephens, Ark., below 29° (August 24, 1931) ..... .41

(Continued on Page 94)

CRUDE OIL GRAVITY TABLE

	Kansas and Oklahoma	North and Central Texas	East Central Texas	Gray County, Texas	Carson and Hutchinson Counties, Texas	Salt Creek, Wyoming	North Louisiana and Arkansas	Gulf Coast (Tex. and La.)
	1	2	3	4	5	6	7	8
Below 25 degrees	...	...	...	...	...	...	...	$.70
25-25.9 degrees	...	...	...	...	...	...	...	.71
26-26.9 degrees	...	...	...	...	...	...	...	.72
27-27.9 degrees	...	...	...	...	...	...	...	.73
28-28.9 degrees	...	...	...	...	...	...	...	.74
Below 29 degrees	$.61	$.61	$.61	...	...	$.61	$.61	...
29-29.9 degrees	.63	.63	.63	...	...	.63	.63	.74
30-30.9 degrees	.65	.65	.65	...	...	.65	.65	.74
31-31.9 degrees	.67	.67	.67	...	...	.67	.67	.77
32-32.9 degrees	.69	.69	.69	...	...	.69	.69	.78
33-33.9 degrees	.71	.71	.71	...	...	.71	.71	.79
34-34.9 degrees	.73	.73	.73	$.61	$.56	.73	.73	.80
35-35.9 degrees	.75	.75	.75	.63	.58	.75	.75	.81
36-36.9 degrees	.77	.77	.77	.65	.60	.77	.77	.82
37-37.9 degrees	.79	.79	.79	.67	.62	.79	.79	.83
38-38.9 degrees	.81	.81	.81	.69	.64	.79	.79	.84
39-39.9 degrees	.83	.83	.83	.71	.66	.79	.79	.85
40 degrees and over	.85	.85	.85	.73	.68	.79	.79	.86

The Magnolia Petroleum Co., which pays a flat price in every field in which it purchases oil, posted the following price notice: "Effective November 2, 1931, at 7 a.m. and until further notice our prices on crude oil will be as follows at the wells: North and North Central Texas, which includes only Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden, 83 cents; Central Texas, which includes only Mexia, Wortham, Corsicana light, Panola County and Lytton Springs, 79 cents; East Texas district, 83 cents; West Texas, which includes Winkler, Crane, Upton, Howard, Glasscock and Mitchell Counties, 50 cents; Panhandle district of Texas: Gray County, 73 cents; Carson and Hutchinson Counties, 66 cents; Southwest Texas: Mirando, 75 cents; Darst Creek, 60 cents; Corsicana heavy and Luling, 49 cents. Oklahoma: Cushing, Yale, Oklahoma City, Morrison, Wewoka, Seminole, 83 cents; Cement, Duncan and Walters, 75 cents; Hewitt and Graham, 67 cents; Healdton, 52 cents.

The Magnolia Petroleum Co. made the following announcement applying to North Louisiana and Arkansas: "Effective November 4, 1931, at 7 a.m., and until further notice our prices on crude oil in the States of Louisiana and Arkansas will be as follows per barrel at the wells: Louisiana—Bull Bayou, 83 cents; Haynesville, 85 cents; Pine Island, 73 cents; Cotton Valley, 61 cents. Arkansas—El Dorado, 63 cents; Rainbow, 63 cents; El Dorado East Field, 55 cents; Smackover, 55 cents.

The White Eagle Oil Corp., effective November 2, posted the following prices in Kansas: Group 1—Eastborough, Wright, Robbins, Greenwich, Lorena and North Greenwood Pools, 85 cents; Group 2—Eastman, Fox-Bush and Keighly, 83 cents; Group 3—Smock, Sluss, Leon-Weaver, Peabody and Rock, 81 cents; Group 3A—Ritz-Canton, 79 cents; Group 4—Urschell, Florence, Elbing, Nuttle-Koogler, 77 cents; Augusta, 77 cents; Group 5—Gelwick, 61 cents.

Column 1—Led by Continental Oil Co., effective November 2, and adopted by other purchasers on same day, excepting that the Carter Oil Co., Gypsy Oil Co. and Pure Oil Co. started their schedule at below 25 degrees, 53 cents; 25 degrees, 55 cents, with 2 cents added for each degree upward to 40 degrees and above at 85 cents.

Column 2—Led by Continental Oil Co., effective November 2, and followed on same day by other purchasers.

Column 3—Led by Humble Oil & Refining Co., effective November 2.

Column 4—Led by The Texas Company, November 2, followed by Humble Oil & Refining Co., Gulf Pipe Line Co. and H. F. Wilcox Oil & Gas Co. same day.

Column 5—Led by The Texas Company, November 2, followed on same day by Humble Oil & Refining Co. and Gulf Pipe Line Co.

Column 6—Mid West Refining Co., November 2.

Column 7—Standard Oil Co. of Louisiana, November 4, 1931; The Texas Company, Gulf Refining Co. and Louisiana Oil Refining Co. same day.

Column 8—Led by The Texas Company, followed on same day by Humble Oil & Refining Co., Vacuum Oil Co., Gulf Pipe Line Co. and Sun Oil Co., but two last named companies' schedules stop at 25 degrees and above at 81 cents, and the Sinclair Refining Co., but latter company's schedule stops at 31 degrees and above at 71 cents.

CALIFORNIA CRUDE OIL PRICES

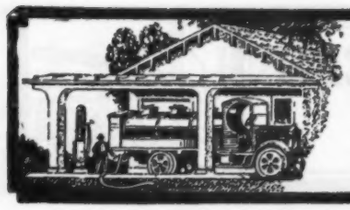
STANDARD OIL CO. OF CALIFORNIA

For its current purchases of crude oil at the well (unless otherwise specified) the allowable crude oil produced in accordance with allocations made by the California Statewide Curtailment Committee. All gravities above those quoted take highest price offered in that field. Effective June 19, 1931, at 7 a.m.

(Gravity)	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea Canon	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	$.65	$.65	...	$.55	$.55
15-15.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
16-16.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
17-17.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
18-18.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
19-19.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
20-20.9	.65	.65	.65	.66	.66	.65	.65	.65	...	.55	.55
21-21.9	.65	.65	.65	.68	.67	.65	.66	.65	...	.55	.57
22-22.9	.65	.65	.66	.70	.68	.66	.68	.65	...	.56	.59
23-23.9	.67	.67	.68	.72	.70	.67	.70	.66	...	.58	.60
24-24.9	.69	.69	.70	.74	.72	.68	.72	.67	$.65	.61	.62
25-25.9	.71	.71	.72	.76	.74	.70	.74	.69	.65	.64	.64
26-26.9	.73	.73	.74	...	.76	...	...	.71	.65	.66	.66
27-27.9	.75	.75	.76	...	.78	...	...	.73	.68	.68	.67
28-28.9	.77	...	...	...	.80	...	...	.75	.71	.71	.69
29-29.9	.79	...	...	...	...	...	...	.77	.73	.74	.71
30-30.9	.81	...	...	...	...	...	...	.79	.75	.76	.72
31-31.9	...	...	...	...	...	...	...	...	.78	...	...
32-32.9	...	...	...	...	...	...	...	...	.80	...	...
33-33.9	...	...	...	...	...	...	...	...	.83	...	...
34-34.9	...	...	...	...	...	...	...	...	.85	...	...
35-35.9	...	...	...	...	...	...	...	...	.87	...	...

Standard Oil Co. of California prices in other fields:
Wheeler Ridge—55 cents per barrel for all grades (14° to 25.9°).
Coalinga—55 cents for all grades from 14° to 24-24.9°; 57 cents for 25 gravity.
Newhall, McKittrick and Kern River—55 cents for all grades (14° to 19.9°).
Montebello—65 cents for all grades (14° to 25.9°).
Whittier and LaHabra—65 cents for all grades (14° to 22.9°).
Elwood Terrace, f.o.b. ship—33° to 33.9°, 79 cents; 34° to 34.9°, 81 cents; 35° to 35.9°, 84 cents; 36° and above, 87 cents.
Playa Del Rey—Prices subject to field gathering charge of 5 cents per barrel—19° to 19.9°, 65 cents; 20° to 20.9°, 65 cents; 21° to 21.9°, 66 cents; 22° to 22.9°, 67 cents; 23° to 23.9°, 68 cents; 24° to 24.9°, 67 cents; 25° and above, 68 cents.

(Continued on Page 103)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Dec. 1

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago	15.0	15.0	3.0	9.0
Decatur, Ill.	15.4	15.4	3.0	9.0
E. St. Louis	14.7	14.7	3.0	8.2
Joliet	15.4	15.4	3.0	9.0
Peoria	15.4	15.4	3.0	9.0
Quincy	15.2	15.2	3.0	8.8
Davenport, Ia.	15.5	15.5	3.0	9.3
Des Moines	14.4	14.4	3.0	8.0
Keokuk	15.5	15.5	3.0	6.3
Sioux City	15.1	15.1	3.0	8.9
Duluth, Minn.	16.5	16.5	3.0	9.3
Mankato	16.1	16.1	3.0	8.0
Minneapolis	14.4	14.4	3.0	9.3
La Crosa, Wis.	17.2	17.2	4.0	10.0
Milwaukee	16 1	16.1	4.0	8.9
Madison	16.2	16.2	4.0	9.1
Detroit, Mich.	14.6	14.6	3.0	10.7
Grand Rapids	15.7	15.7	3.0	10.6
Saginaw	15.9	15 9	3.0	10.8
Evansville, Ind.	16.1	16.1	4.0	9.9
Indianapolis	16.2	16.2	4.0	10.1
South Bend	16.4	16.4	4.0	8.0
Fargo, N. D.	17.9	17.9	3.0	11.9
Huron, S. D.	17.3	17.3	4.0	10.7
Sioux Falls	16.8	16.8	4.0	10.4
K. C., Mo.	14.9	14.9	3.0	7.6
Springfield*	14.9	14.9	3.0	8.5
St. Louis*	13.9	13.9	2.5	8.3
St. Joseph	10 4	10.4	3.0	7.5
Wichita, Kans.	13.8	13.8	3.0	7.9
Bartlesville, Ok.	14.0	16.0	5.0	7.0

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 1½ cents or more below the price on the regular grade.

Effective November 4—New dump discount applicable on all grades of gasoline sold from tank wagon. Any tank wagon customer buying 25 gallons or more at one time will be given 1-cent discount per gallon off tank wagon price at time of delivery. Customers not under contract receive no other discount.

Effective April 15—Discounts on Q.D.A. on 1,000 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 2 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price. On deliveries of 75,000 gallons or more each classification allowed 1 cent additional discount.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	14.0	15 0	4 0	8 0
Fort Worth	14 0	15.0	4 0	7 0
Houston	13.0	15.0	4.0	8.0
San Antonio	13.0	15 0	4.0	7 0
El Paso	15 0	17.0	4 0	10 0
Texarkana	13 0	15 0	4.0	8 0
Muskogee, Okla.	10.0	13 0	5 0	8.0
Okla. City	14.0	16.0	5.0	7.0
Tulsa	14 0	16 0	5.0	8 0
Ft. Smith, Ark.	†16.5	17 0	5 0	*11.0
Little Rock	*17.5	17.0	6.0	*11.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

*Less 2 cents to dealers.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	14.0	17 0	4.0	13 5
Pueblo	12.0	15.0	4.0	12.0
Grand Jcts.	18.0	21.0	4.0	14 5
Casper, Wyo.	15.0	18.0	4.0	10.0
Cheyenne	†15.0	15.0	4.0	11.5
Butte, Mont.	18.0	21.0	5.0	16.0
Billings	20 0	23.0	5.0	14.5
Great Falls	21.0	23.0	5.0	16.0
Helena	21 0	24 0	5.0	16 0
Salt Lake, Utah	17.5	20.5	4.0	16.0
Albu'que, N. M.	18.0	21.0	6.0	14.0
Boise, Idaho	21.0	24 0	5.0	18.0
Twin Falls*	21.0	20.0	5.0	18.0

*2½-cent discount off tank wagon to dealers.

†3-cent discount off tank wagon to dealers.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points	15.0	16.0	4.0	*12.0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13 cents.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	14.9	15.9	4.0	9.25
McCook	17.0	17.0	4.0	7.5
Norfolk	16.75	17.75	4.0	9.75
N. Platte	17.75	18.75	4.0	10.50
Scottsbluff	17.0	17.0	4.0	9.0

Note—Dealers' discount allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal service station price; Nebraska Blue (third grade), 1 cent off normal service station price.

PACIFIC COAST TERRITORY

	Gasoline			Kero.
	Wh'le's price	Retail* price	Incl'ds tax of	tank wagon
Fresno	19.5	16.5	3.0	17.0
San Francisco	19.5	16.5	3.0	15.5
Los Angeles	19.0	16.0	3.0	15.5
Reno, Nev.	23.5	20.5	4.0	19.0
Portland, Ore.	21.0	18.0	4.0	16.5
Seattle, Wash.	22.0	19.0	5.0	16.5
Tacoma	22.0	19.0	5.0	16.5
Spokane	25.5	22.5	5.0	20.5
Phoenix, Ariz.	15.5	17.0	5.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 3 cents plus a 2-cent special temporary discount subject to withdrawal at any time.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	16.6	17.6	2.0	16.6
New York*	15.3	15.3	2.0	14.3
Buffalo	15.8	15.8	2.0	14.8
Rochester	16.0	16.0	2.0	14.0
Syracuse	16.8	16.8	2.0	14.8
Boston, Mass.	16.5	16.5	3.0	13.5
Augusta, Me.	18.8	18.8	4.0	14.8
Manch'tr, N. H.	18.4	18.4	4.0	14.0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.	14 5	14 5	6 0	12 0
Baton Rouge	16.5	17.0	5.0	12.0
Alexandria†	15.5	15.5	6.0	12.0
Lafayette*	17.5	18.0	6.0	12 0
Lake Charles*	14.0	14.0	6.0	12.0
Shreveport	16.5	17.0	5.0	13.0
Knoxville, Tenn.	20.0	20.5	6.0	13.5
Memphis	16.0	16.0	6.0	10 0
Chattanooga	19.5	20.0	6.0	12.0
Nashville	19.0	19.5	6.0	12.5
Bristol	18 5	19 5	6 0	14.0
Lt. Rock, Ark.	17.5	18.0	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	11.7	6.0
V.M.P. naphtha	13.7	7.5
Cleaners' naphtha	15.2	9.0
Stanisol	15.2	9.0

Tank wagon prices f.o.b. Chicago and Whiting, effective Nov. 6.

STANOLIND FURNACE OIL IN CHICAGO

Effective July 1, prices f.o.b. Chicago, tank wagon prices: 1 to 99 gallons, 8 cents; 100 gallons or more, 6 cents.

Stanolax Fuel

Effective May 9, f.o.b. Chicago, tank wagon prices: 1 to 199 gallons, 7 cents; 200 gallons or more, 5 cents. Sinclair met this by bringing down the price of its No. 3.

Fuel Oils

Chicago tank wagon prices (in lots of 400 gallons and over): 35-40 straw distillate, 6 cents; 32-36 gas oil (light zero), 5.5 cents; 33-36 gas oil (industrial), 5.25 cents; 28-30 zero fuel oil, 5 cents; 24-26 fuel oil, 4.25 cents; 18-22 fuel oil, 3.75 cents.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	15.0	18.0	3.0	11.0
Philadelphia	14.0	15 0	3 0	11 0
Scranton	15 0	16 0	3 0	11.0
Allentown	15 0	16.0	3.0	11 0
Altoona	15.0	16.0	3.0	11.0
Erie	15.0	16.0	3.0	11.0
Dover, Del.	15 0	16 0	3 0	11.0
Wilmington	15 0	16.0	3.0	11 0
Springfd, Mass.	13.0	14 0	3.0	10 0
Worcester	14.3	15.3	3.0	10.0
Boston	13.5	14.5	3.0	10.0
Providence, R.I.	11.5	12.5	2.0	10.0
Hartford, Conn.	13.0	14.0	3.0	10.0
New Haven	14.6	15.6	3.0	10.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.*	19.0	19.0	6.0	12.5
Augusta	20.0	21.0	6.0	14.0
Macon	20.0	20.0	6.0	12.0
Savannah	19.0	19.0	6.0	13.0
Birm'ham, Ala.	18.0	18.0	6.0	13.0
Mobile	17.5	17.5	5.0	10.0
Montgomery	21.0	21.0	6.0	13.5
Jackson, Miss.	18 0	18.0	6 5	11.5
Vicksburg	18.0	18 0	5.5	8.0
Jack'ville, Fla.	20.0	21.0	7.0	12.0
Miami	21.0	22.0	7.0	13.0
Pensacola	21.0	22.0	7.0	13.0
Tampa	20.0	21.0	7.0	12.0
Lexington, Ky.	17.0	18.0	5.0	12.0
Covington	18.0	19.0	5.0	12.0
Louisville	16.0	17.0	5.0	11.0
Corbin	18.0	19.0	5.0	15.0

A third grade "Kyso Green," is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 3 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery and Birmingham state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents. To Mobile state tax add 1-cent city tax and 2½ cents county tax.

Effective April 2 price to dealers 2 cents under posted tank wagon price.

*An additional discount of 1 cent is offered to dealers here effective October 6.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atl'tic City, N.J.	15 7	16 7	3.0	11 5
Newark	14.7	15 7	3 0	10 5
Annapolis, Md.	16 2	17.2	4.0	11 0
Baltimore	15.4	16 4	4.0	8 5
Cumberland	17.2	18 2	4.0	13 0
Wash'g'n, D.C.	13 9	14 9	2 0	10 7
Danville, Va.	18.0	19 0	5 0	11.8
Norfolk	16 5	17 5	5.0	10.3
Petersburg	17 5	18.5	5 0	11.3
Richmond	16 9	15 9	5 0	10 7
Roanoke	18 2	18 2	5.0	12 0
Charles'n, W.Va.	16.7	17 7	4 0	11 5
Keyser	17.3	18 3	4.0	12.1
Parkersburg	15 4	16 4	4 0	10 2
Wheeling	16 6	17 6	4.0	11.4
Charlotte, N. C.	17 5	18 5	6 0	10.7
Hickory	19.8	20 8	6.0	12 6
Mt. Airy	19 7	20 7	6 0	12 5
Raleigh	19.4	20.4	6 0	12 2
Salisbury	19.7	20 7	6 0	12.5
Charleston, S.C.	17.5	18.5	6 0	10.3
Columbia	19.4	20 4	6 0	12.2
Spartanburg	19.7	20.7	6.0	12.5

Two cents per gallon discount off retail tank wagon price of gasoline to dealers except Washington, D. C., and States of Maryland and New Jersey, where discount is 3 cents.

TANK WAGON CHANGES

Standard Oil Co. of Kentucky effective November 16 advanced tank wagon and service station prices on Red Crown gasoline from 15 to 18 cents at Vicksburg, Miss., and from 16 to 18 cents at Jackson, Miss.

Continental Oil Co., November 24, advanced gasoline tank wagon and service station prices 1 cent in Utah except Salt Lake City area. Same company advanced

(Continued on Page 104)

CRUDE OIL PRICES

(Continued from Page 93)

Stephens, Ark., 29° and above (August 24, 1931)
Other fields.....See gravity table

Note—Smackover, all grades, Standard Co. of Louisiana, The Texas Company, Gu Refining Co., Magnolia Petroleum Co. Bel vue posted by Magnolia Petroleum C Urania by H. L. Hunt, Inc., and Louisia Oil Refining Co.; Calion by Gulf Refini Co.; East El Dorado by Gulf Refining and Magnolia Petroleum Co.; Stephens, Ar by Louisiana Oil Refining Co. and Atlan Oil Producing Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Nov. 3, 1931)‡ .....$
Luling (Nov. 2, 1931)† .....
Mirando (Nov. 2, 1931)† .....
Pettus (Nov. 3, 1931)* .....
Salt Flat (Nov. 3, 1931)* .....
Thrall‡ .....
Lytton Springs (Lockhart). See gravity ta
Dobrowolski‡ .....
Same as Mid-Continent gravity scale up to and including 38-38.9°.
Somerset‡ .....
Same as Mid-Continent gravity scale up to and including 38-38.9°.

‡The Texas Company. *Humble Oil Refining Co. †Magnolia Petroleum ‡Thrall prices same as North Central Tex less 19½ cents per cwt. freight. ¶Graybu Oil & Refining Co., Pioneer Oil & Refini Co. and Texas Petroleum Products. ||P neer Oil & Refining Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles, light (Aug. 24, 1931) .....$
Iles, heavy (Aug. 24, 1931) .....
Fort Collins (Nov. 3, 1931) .....
Florence (Nov. 2, 1931) .....
Wellington (Nov. 3, 1931) .....
Dutton Creek (Nov. 3, 1931) .....
Rock Creek, Wyo. (Nov. 3, 1931) .....
Frannie, light (Nov. 3, 1931) .....
Frannie, heavy (Nov. 3, 1931) .....
Salt Creek ....Mid-Continent gravity ta
Big Muddy (Nov. 3, 1931) .....
Grass Creek (Nov. 3, 1931) .....
Elk Basin (Nov. 3, 1931) .....
Lance Creek (Aug. 24, 1931) .....
Poison Spider (Mar. 5, 1931) .....
Notches (Mar. 14, 1927) .....
Hudson (June 2, 1931) .....
Lander (Mar. 5, 1931) .....
Rex Lake (Feb. 22, 1930) .....
Osage (Apr. 15, 1931) .....
Lost Soldier (Nov. 3, 1931) .....
Hamilton Dome (Nov. 3, 1931) .....
Greybull (Nov. 3, 1931) .....
Cat Creek (Nov. 3, 1931) .....
Pondera (Nov. 3, 1931) .....
Sunburst, Mont. (Nov. 3, 1931) .....
Hogback, N. Mex. (Aug. 24, 1931) .....
Lea County, N. Mex. (Nov. 3, 1931) ...
Border, Mont. .....
Red Coulee, Alberta .....
Dry Creek, Mont. (Aug. 24, 1931) .....
Maljamar (Aug. 22, 1931) .....
Artesia-Jackson (Nov. 3, 1931) .....

Note—Salt Creek, Cat Creek, Dry Cre Dallas-Derby, Hudson, Greybull and He back posted by Midwest Refining Co. a remainder by Ohio Oil Co. Both compan posted Grass Creek light and Elk Ba Lost Soldier posted by Producers and R finers Corp. Artesia, Jackson and Maljam posted by Continental Oil Co. Border a Red Coulee posted by Imperial Refining Lea County posted by Humble Oil & Ref ing Co. Fort Collins, Wellington, Orcha Florence, Rattlesnake and Table Mesa the Continental Oil Co. Osage posted Arro Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective November 3, 1931)

Lima $1
Wooster .....
Illinois .....
Indiana .....
Princeton .....
Plymouth .....Shut
Western Kentucky .....
Midland, Mich. (Oct. 9, 1931)* .....
Dundee, Mich.† .....
Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity sc Upper and Lower Traverse Sands, Mich.† ....Same as Mid-Continent gravity sc
Somerset, Ky. (Nov. 4, 1931) .....
Hart County, Ky. (Nov. 1, 1931)‡ .....

*Posted by Pure Oil Co. †Posted Standard of Indiana for boat shipme ‡Posted by Stoll Refining Co. Somers Ky., crude purchased by Ashland Refini Ashland, Ky., and delivered through its pipe line.

MEXICO

Panuco* .....$

*F.o.b. ship, based on October trans tions and exclusive of production and exp taxes and bar dues.

CANADA

Ontario (Nov. 3, 1931):
Petrolia* $1
Oil Springs* .....
Alberta (Aug. 24, 1931):
Turner Valley:†
Crude oil 45-48.9 .....
Crude oil 50 and above .....
Crude naphtha .....
Discolored naphtha .....

*Imperial Oil, Ltd. †Imperial Oil, L and Regal Oil & Refining Co.

Of Interest to Sales Departments

Marketing Practices Of Oil Industry Are Subject of Inquiry

AUSTIN, Tex., Nov. 30.—Federal inquiry into marketing practices of the oil industry has been under way for the last year, it was revealed here in a conference of Harry A. Babcock, New York, attorney for the Federal Trade Commission, with Attorney General James V. Allred and Assistant Attorney General H. Bishop. The conference was on the attorney general's suit attempting to collect penalties of $17,850,000 from 15 major oil companies and to oust them from the State on claims of violating the state antitrust laws in retail marketing.

Attorney General Allred said he refused permission to Mr. Babcock to inspect the mass of evidence gathered by the attorney general's department in support of the allegations in his suit, on the ground that it was obtained in a secret court of inquiry, and that the state law prohibits the use of such material for other than judicial proceedings. Mr. Allred said when the evidence has been presented in court it will be available to the Federal Trade Commission.

Attorney General Allred recently asserted the Federal Trade Commission had no authority to approve the oil code of ethics, and that by so doing it was aiding major oil companies to evade the state antitrust laws.

Mr. Babcock indicated that he had been conducting an investigation for the trade commission for the last year, according to Mr. Bishop. Mr. Babcock was most interested in the lease and agency contracts under which major oil companies market their products. His inquiries have been directed along this line, Mr. Bishop said.

The Texas ouster suit was based mainly on these contracts, which Mr. Allred alleged were entered into under an agreement in restraint of trade to monopolize the marketing end of the industry and throttle the independent operator by eliminating him as a competitor.

Mr. Allred asserted the contracts were part of a conspiracy of the majors to grab the field and were made possible by agreement to a "code of ethics" advocated by the American Petroleum Institute and purported to have been approved by the Federal Trade Commission. He criticized the commission for its reported approval of the code.

The Federal Trade Commission is charged with enforcement of the Clayton act, which prohibits discrimination to lessen competition and "tying contracts," whereby lessees are required to deal solely in the commodity furnished by the lessor. It also has jurisdiction over so-called interlocking directorates and holding companies.

The ouster suit named several large foreign oil companies and alleged they owned a controlling interest in Texas companies and had interlocking directorates. Penalties aggregating approximately $17,000,000 were asked by the state.

INCREASE CUBAN TAX

WASHINGTON, D. C., Nov. 28.—The Cuban presidential message contains proposals for an additional tax of 2 cents a gallon on gasoline, the existing consumption tax on gasoline being 10 cents a gallon.

Advices from Quebec City, Canada, indicate that additional taxes will be placed on gasoline to make up losses of income sustained by the Quebec Liquor Commission from which formerly much of the public road fund was received.—C.E.K.

LOWER TRENDS ARE SHOWN IN OIL IMPORTS AND EXPORTS FOR 1931

By C. E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Nov. 30.—A lower trend in both exports and imports of petroleum and products is shown by the monthly summary issued by the Bureau of Foreign and Domestic Commerce for October and the 10 months ending with October.

The decrease in the value of exports of petroleum and products was from $41,440,834 in October, 1930, to $21,118,539 in October, 1931, and from $436,483,260 in the 10 months ending with October, 1930, to $233,181,814 in the same period of 1931.

Petroleum and its products imported during October, 1930, were valued at $12,671,709. This fell to $7,007,944 in October, 1931. For the 10 months ending October, 1930, the imports were valued at $125,782,357, decreasing to $81,602,588 in the same period of 1931.

Crude oil exported in October, 1930, amounted to 2,166,655 bbls., valued at $3,161,501 compared with exports of October, 1931, of 2,389,363 bbls., valued at $1,923,388. For the 10 months of 1930 crude exports aggregated 20,600,290 bbls. valued at $28,651,352 compared with 22,015,273 bbls. valued at $17,743,616 in the same period of 1931.

Imports of crude in October, 1930, were 5,061,463 bbls. valued at $5,270,652, compared with 4,105,734 bbls. valued at $2,817,765 in October, 1931. Imports of crude for the 10 months of 1930 were 52,935,153 bbls. compared with 39,330,790 bbls. in the similar period of 1931.

Advanced and refined oils imported in October, 1930, aggregated 3,787,563 bbls., increasing to 3,931,039 bbls. in October, 1931.

Refined oils exported in October, 1930, amounted to 10,712,171 bbls. valued at $36,094,721, decreasing to 7,576,155 bbls. valued at $17,756,196 in October, 1931.

During the 10 months of 1930 refined oils exported amounted to 106,141,667 bbls., compared with 77,888,795 bbls. in the same period of 1931.

Gasoline, naphtha and other light products exported in October, 1930, amounted to 6,132,570 bbls. valued at $21,816,389 compared with 3,325,450 bbls. valued at $7,180,423 in October, 1931.

For the 10 months ending October, 1930, these gasoline exports amounted to 55,423,542 bbls., valued at $224,539,242 compared with 37,523,638 bbls. valued at $95,058,198 in the same period of 1931.

Imports of gasoline, naphtha and other light products in October, 1930, amounted to 1,619,577 bbls., valued at $5,586,508, falling to 1,181,394 bbls. valued at $2,365,173 in October, 1931.

For the 10 months ending October, 1930, these gasoline imports aggregated 14,884,002 bbls., valued at $52,111,168, falling to 12,242,234 bbls., valued at $32,501,431 in the same period of 1931.

Of the imports in the 1931 10-month period 10,972,435 bbls. came from the Netherland, West Indies.

Lubricating oil exported in October, 1930, aggregated 720,781 bbls., valued at $6,817,763, compared with 729,576 bbls. valued at $5,457,063 in October, 1931.

Kerosene exported in October, 1930, amounted to 1,401,011 bbls., valued at $4,729,276, dropping to 1,267,393 bbls. valued at $3,085,910 in the same period of 1931. In the 10-month period these exports dropped from 14,401,698 bbls. in 1930 to 10,688,228 bbls. in 1931.

Imports of paraffin wax fell from 3,182,368 pounds in October, 1930, to 2,683,828 pounds in October, 1931.

TESTS SHOW POWER OF HIGH-COMPRESSION CAR

A high compression engine has twice as much reserve horsepower available for emergencies as the average low compression engine, according to Charles D. Hawley, associate director of the Detroit engineering laboratories of the Ethyl Gasoline Corp.

"In the case of a high compression car," says Mr. Hawley, "the driver, traveling at a high rate of speed, has enough reserve power to enable him to shoot by a car ahead and return to the right side of the road in a brief interval of time. The reason for this is that the average low compression automobile, moving at 60 miles an hour, has about 7.5 horsepower available in reserve. A high compression engine, traveling at the same rate of speed, has approximately 15 additional horsepower which may be called into use.

"On a hill an automobile needs greater power at a low speed. A high compression machine has twice as much power available as a low compression car, at low speeds, it has been shown in tests conducted in the Ethyl engineering laboratories. Here again the safety factor enters in. Frequently we meet a truck on a hill, lumbering along and retarding the traffic procession. A car with ready reserve power can pass the larger vehicle with considerable less danger than a machine of standard compression."

Tests conducted by Ethyl engineers reveal a wide difference in "pick up" between machines of high and low compression. Starting at five miles an hour, it required 10.5 seconds to increase the speed of a standard machine to 30 miles per hour. The same increase was accomplished by the high compression car in 8.5 seconds. Eighteen seconds were consumed by the first vehicle before it could make 45 miles per hour while the high compression car performed the same feat in 14 seconds.

CHANGE PRICE BASIS

NEW YORK, Nov. 28.—Coincidental with revisions in bunker fuel oil prices in Halifax, Montreal, and Quebec to 75 cents, $1, and $1.10 per barrel, respectively, at these ports, Standard Oil Co. of New Jersey is now pricing its fuel oil at these ports in U. S. currency.

Sales were formerly made by the company at the ports mentioned in Canadian currency.

SALES IN CHINA LESS

NEW YORK, Nov. 28.—Unsettled conditions in various parts of China, incidental to the various civil wars which have raged during the past year and the present "unofficial conflict" with Japan has reacted materially against sales of refined petroleum products in that country.

Gasoline sales, particularly in the interior, have fallen off substantially, and the number of motor vehicles now in operation in China is reported to be smaller than was the case five years ago. Kerosene sales have also been adversely affected throughout the country, with distribution seriously hampered by unsettled conditions.

Pew Declares Higher Tax on Gasoline May Mean Lower Revenues

NEW YORK, Nov. 30.—An increase from 3 cents per gallon to 5 cents in the Pennsylvania gasoline tax rate may mean an actual loss in revenues to the State, said J. Howard Pew, president of the Sun Oil Co., in a statement before the ways and means committee of the Pennsylvania legislature.

"To put it briefly," said Mr. Pew in his summary, "a survey of the entire country demonstrates beyond cavil that 3 cents is the point of maximum productiveness for this tax. Above 3 cents it tends to drive out the car, to produce a lower consumption of gasoline per car, and to lessen the revenue that can be collected. Above 3 cents, the tax presents at once a too attractive price to the bootlegger and the crook and a too onerous burden to the automobile owner.

"If you place this tax at 5 cents, it will be higher than in any state adjoining Pennsylvania. New York's tax is 2 cents, New Jersey and Delaware 3 cents, Maryland, West Virginia and Ohio each 4 cents. With a 5-cent tax, Pennsylvania would have not only a higher rate than any of these adjoining states, but a higher rate than any of the great, rich northern and eastern commonwealths.

"Such a tax rate would inevitably drive a vast volume of business away

(Continued on Page 102)

CANADA IS CONSIDERING NOVEL TAX ON GASOLINE

NEW YORK, Nov. 30.—Government control over the distribution of gasoline, somewhat along the lines of the liquor distribution control plan, is under consideration in Canada as a means of helping the budget without the necessity of further tax increases, according to reports from Quebec.

"Cheaper gasoline for the motorist and at the same time larger revenue for the government from the gasoline tax are forecast by rumors about the contents of the budget speech," says the Quebec correspondent of the Herald-Tribune. "The budget is expected to reveal a deficit of b tween $8,000,000 and $10,000,000 and some interesting experiments to meet this are expected. One well supported conjecture current is that the government, reluctant to impose any really unpopular taxes, will not add to the impost on beer, but will try to make up the needed revenue altogether from a new gasoline tax.

"The report is to the effect that the government intends to do with gasoline something similar to what it did with liquor, that is to take over the wholesale distribution of gasoline, without disturbing the retail distributors in any way. It is frequently charged that gasoline prices in the province of Quebec are higher than those elsewhere, without apparent reason. The price of gasoline in Montreal is understood to give a spread of 16 cents between the wholesale and retail prices, a spread which is apparently largely accounted for as wholesalers' profit.

"Officials of local oil companies when approached today preferred to withhold comment on the suggested government control of gasoline distribution until they heard more details about it. A check-up has, however, shown some important differences from the figures quoted in the dispatch above. Gasoline in tank car loads on the rails sells for 15 cents a gallon wholesale here. The price of gasoline in the city of Montreal is 26 cents a gallon, this amount including the government tax of 5 cents."

Dividends by Standard Group Off 23%

Cash Payments for 1931 Will Amount to $220,739,182, Against $286,526,728 Paid Out in 1930, Which Was a Record Year for Group

NEW YORK, Nov. 30.—Cash dividend payments of the Standard Oil group of companies for 1931 will amount to $220,739,182, compared with $286,526,728 in 1930, the record year to date, a decline of $65,927,546 or approximately 23 per cent, according to records compiled by Carl H. Pforzheimer & Co. Two companies have not yet taken action for the final quarter of 1931, but their usual payments are included in the total. The 1931 payments, while lower than those for 1930 and 1929, exceeded 1928 payments by approximately $2,000,000.

Two companies accounted for more than one-third of the total decline in payments for 1931 as compared with 1930. Imperial Oil, Ltd., in the final quarter of 1930 paid an extra dividend of 50 cents a share or $13,278,748 while no extra was paid in the last quarter of 1930. Prairie Pipe Line Co. paid $6,075,000 in dividends in 1931 against $20,250,000 in 1930, a decrease of $14,175,000.

Ohio Oil Co. discontinued payments on its common stock in the second quarter of 1931 as did Standard Oil of Kansas. Standard of Indiana reduced payments in the third quarter one-half, from 50 cents a share quarterly to 25 cents a share. Socony Vacuum Corp. in the final quarter of 1931 reduced the dividend to 25 cents a share against 40 cents a share paid in the third quarter which was the initial dividend following the merger of Standard Oil Co. of New York and Vacuum Oil Co.

Standard Oil Co. of New Jersey paid the same dividends in 1931 as in 1930, namely 25 cents extra and 25 cents regular each quarter, or $2 per annum. Standard Oil of California also made the same cash payments, $2.50 per share per annum, although the 2 per cent stock dividend which was distributed in the two previous years was not declared in 1931.

Cash dividend payments of the group for the fourth quarter of 1931 will amount to $48,530,230, compared with $21,263,688 in the second quarter and $83,047,644 in the fourth quarter of 1930, which was a record for any quarter in the history of the group.

The smaller cash dividend payments of the Standard Oil companies for 1931 reflect of course the unfavorable earnings of the oil industry. However, the record of payments seems favorable in view of the fact that only one major company passed its dividend and only two reduced their payments during the year.

Continued Support

Oil stocks in general were off during the week, the market sagging in sympathy with recessions in the general list. There was fair buying support extended the oils on the decline, however, and the market in general held above the low levels for the year, despite the fact that stocks in other classifications were breaking through previous lows into new low ground.

Sentiment with regard to the oils, as a group, continued rather constructive, with the outlook indicating continued support of petroleum issues in the belief that the industry has weathered the worst of its storm, and that 1932 earnings will show pronounced improvement over those for the current year.

Rio Grande Oil

A receiver in equity has been asked for the Rio Grande Oil Co. The petition, filed in Federal Court in Los Angeles by Barnsdall Oil Co. of California and the Interstate Equities Corp., asked appointment of a receiver to conserve the company's assets in California, Arizona, New Mexico, and Texas, and prevent creditors from obtaining judgments against them.

Sinclair Consolidated Oil Corp. at various times during the past year has been reported negotiating for the acquisition of Rio Grande. A statement issued by H. F. Sinclair, chairman of the board of Sinclair Consolidated, on the day of the filing of the receivership petition, pointed out that Mr. Sinclair is in no way identified with the management of Rio Grande, and that the only interest Sinclair Consolidated Oil Corp. has in the Rio Grande company is that of a creditor.

Humble Oil

Humble Oil & Refining Co. has declared the regular quarterly dividend of 50 cents per share, payable January 1 to stock of record December 2.

Standard of Kentucky

Standard Oil Co. of Kentucky has declared the regular quarterly dividend of 40 cents per share, payable December 31 to stock of record December 15.

Defers Dividend

Anglo-Persian Oil Co., in which the British government is a large stockholder, has decided to defer the interim dividend due at this time. A statement by the directors said the board will defer consideration of a dividend until the accounts for the year are available.

Pure Oil

Directors of the Pure Oil Co. have declared the usual dividends of $1.25 on the 5¼ per cent preferred stock, $1.50 on the 6 per cent preferred and $2 on the 8 per cent preferred, payable January 2 to stockholders of record December 10.

Skelly Oil

Skelly Oil Co. and subsidiaries report for quarter ended September 30, 1931, loss of $284,347 after taxes, depreciation, depletion, interest, etc., but before extraordinary profit of $1,045,606 on sale of sundry properties. Including latter figure, net income for September quarter was $761,259, equal after dividend requirements on 6 per cent preferred stock, to 57 cents a share (par $25) on 1,011,923 shares of common stock comparing with net loss of $1,926,538 in preceding quarter and net income of $646,522, equal to 42 cents a share on 1,099,472 common shares in third quarter of previous year.

For nine months ended September 30, 1931, net loss was $1,941,624 after taxes and charges against net income of $1,930,306, equal to $1.51 a share on 1,099,472 common shares in first nine months of 1930.

Rio Grande Oil

It is indicated that the hearing on the application for a receiver in equity for Rio Grande Oil Co. of Texas may develop into a three-cornered contest. Attorneys for Murray Shewitt, a broker, who secured a $2,137,500 judgment against the company, will oppose the application for a receiver on the ground that the company is solvent and receivership action is primarily for the purpose of preventing execution of judgment or posting of necessary bond for appeal. Attorneys for Barnsdall Oil Co. of California and Interstate Equities Corp. can be expected to argue for the appointment of a receiver to conserve their interest, while at the moment, the company appears to be in a more or less neutral position.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Mar. 25	26.85	July 29	20.68
Apr. 1	24.80	Aug. 5	20.80
Apr. 8	25.52	Aug. 12	21.00
Apr. 15	24.72	Aug. 19	24.28
Apr. 22	22.73	Aug. 26	23.26
Apr. 29	20.54	Sept. 2	22.30
May 6	20.74	Sept. 9	20.28
May 13	20.38	Sept. 16	18.30
May 20	19.25	Sept. 23	17.64
May 27	18.35	Sept. 30	15.82
June 3	18.00	Oct. 7	15.86
June 10	19.62	Oct. 14	16.42
June 17	19.23	Oct. 21	17.58
June 24	22.53	Oct. 28	16.80
July 1	22.32	Nov. 4	18.86
July 8	21.24	Nov. 11	18.76
July 15	19.79	Nov. 18	17.60
July 22	21.33	Nov. 25	16.68

INDUSTRIAL CALCULATIONS

An interesting and valuable book under the title "Industrial Chemical Calculations," by Hougen and Watson of the University of Wisconsin, has appeared from the press of John Wiley & Sons, New York, at $4.50.

This book is more than a collection of problems; the important principles are explained in detail and then methods of calculation are presented and studied. The main purpose of the treatise is the development of concise and logical methods by which complex industrial problems may be solved from fundamental principles. The discussions relating to the gas laws, vaporization, distillation, condensation, fuels and heat balances are of particular interest to the petroleum industry. There are 502 pages with numerous illustrations.

MOVE DIXIE OFFICES

The Dixie Service Co., formerly of Longview, Tex., has opened offices on the fourteenth floor of the Tower Petroleum Building, at Dallas, Tex. This company owns and operates 35 filling stations in East Texas. The company distributes the products of the East Texas Refining Co., which has two refineries in East Texas, located at Longview and Friars Switch.

C. M. McNutt is president of the company while F. W. Burford, president of the East Texas Refining Co., is vice president.

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending Nov. 21)

1931 High	1931 Low	Week ended Nov. 21 Sales	Week ended Nov. 21 High	Week ended Nov. 21 Low	Close Nov. 25	Stocks—	Outstanding capital	Par value	Div. rate	Payable or last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1	⅛	100	¼	⅛	..	Atlantic Lobos	499,448	N.P.	....	5-28-30	..	..	..	..	1	¼
16	6¼	50	11	11	10	Borne Scrymser	$1,000,000	$25	....	10-15-30	56½	44½	46½	25	25	11¼
56	39	No sales	..	..	..	Buckeye Pipe Line	$10,000,000	$50	$1Q	12-15-31	76	53	74½	55	69	39⅞
129½	88	No sales	..	..	..	Chesebrough Mfg.	$3,000,000	$25	$1Q‡	9-30-31	161	117	210	130	184⅞	104¼
3⅞	1⅝	2,800	2½	2⅛	2¼	Creole Petroleum	(sh) 5,977,872	N.P.	....	.....	17½	9½	11⅜	5⅝	7⅛	3
39	20⅝	No sales	..	..	..	Cumberland Pipe Line	$1,500,000	$50	50cQ	6-15-31	114	67	75⅜	40	65⅜	20¼
36	19	No sales	..	..	..	Eureka Pipe Line	$5,000,000	$100	$1Q	11- 1-31	88	64½	70½	40	54⅜	26
3	1	200	1⅛	1⅛	..	Galena Signal Oil	$16,000,000	$100	....	.....	13	4¼	6½	3	7	2½
72	47¾	1,800	53	51¾	51¼	Humble Oil & Refining	$74,103,300	$25	50cQ	1- 1-32	114⅜	59½	128	74½	119	57¼
18¼	7⅞	4,100	11	10	10	Imperial Oil of Canada (new)	(sh) 25,421,708	N.P.	12½cQ	12- 1-31	104	56¾	41	22	30	15
21½	5½	200	8¾	8½	8½	Indiana Pipe Line (new)	$3,000,000	$10	25cQ	8-15-31	91⅞	74⅜	41⅞	26	41	14½
15½	7⅜	6,700	11⅝	10½	10½	International Petroleum (new)	(sh) 14,247,088	N.P.	25cQ	9-15-31	55	35	30⅜	15	24	11⅜
17½	8½	No sales	..	..	..	National Transit	$6,302,500	$12.50	25cQ	9-15-31	32⅜	19⅜	25½	10¼	22⅜	11½
14½	5⅞	7,100	8¾	8¼	..	New York Transit	$1,000,000	$10	25cQ	10-15-31	75	38½	17½	10	21⅜	10¼
35½	20	150	35	33	..	Northern Pipe Line	$2,000,000	$50	$2SA	7- 1-31	69	56½	63	41	54	26¼
15½	6	100	7⅛	7⅛	..	Penn Mex Fuel	$10,000,000	$25	50c	10-31-31	84	28	44½	20	32	12
16½	3¼	No sales	..	..	..	Solar Refining	$4,000,000	$25	....	12-20-29	..	..	50	20	33	4⅞
23⅞	12	400	13½	13	..	South Penn Oil	$30,000,000	$25	25cQ	9-30-31	71⅞	36¾	60¼	35⅛	45⅞	16¼
17	9	No sales	..	..	..	Southern Pipe Line	$1,000,000	$10	50cQ	9- 1-31	19	15	22½	13	20⅞	8⅝
42½	25	No sales	..	..	..	Southwest Pennsylvania Pipe Line	$1,750,000	$50	$1Q	10- 1-31	102	70	70	60	64	32
38½	15⅞	22,800	22	19⅞	19⅝	Standard Oil of Indiana	$348,175,089	$25	25cQ	9-15-31	95⅞	70⅞	63	45	59⅞	30
23⅝	13¼	2,600	16⅞	16¼	15⅞	Standard Oil of Kentucky	$25,654,516	$10	40cQ	12-31-31	179¾	122¼	467½	29	404½	185⅝
36½	16½	500	26	25¼	..	Standard Oil of Nebraska	$4,649,225	$25	50cQ	12-21-31	54⅞	39⅞	50¼	40	48⅞	34⅝
62½	35	100	40	40	38¼	Standard Oil of Ohio	$14,000,000	$25	62½cQ	10- 1-31	134	71	129	60	108½	43¼
4½	2⅝	No sales	..	..	..	Swan-Finch Co.	$861,466	$25	....	1-15-29	23¼	16	18	10	10	4

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus 50 cents extra.

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending Nov. 21)

1931 High	1931 Low	Week ended Nov. 21 Sales	Week ended Nov. 21 High	Week ended Nov. 21 Low	Close Nov. 25	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1¾	¼	500	⅜	⅜	⅜	American Maracaibo	(sh)	700.000	N.P.	....	.....	9½	3⅛	8⅝	1⅛	4½	½
16⅞	6¼	300	10⅛	10	..	British American Oil Corp.		1.311.321	N.P.	20cQ	10- 1-31	55	32¾	62	7⅞	23	13⅜
2⅜	½	3.100	½	½	..	Carib Syndicate		$131,250	25c	....	.....	4½	3⅞	4⅞	1	2¾	⅝
20¾	5¼	61.100	7⅞	7	7	Cities Service	(sh)	24,290,359	N.P.	30cA§	11- 1-31	90⅞	54	68⅛	20	44¼	13
84⅜	35⅝	1,200	58⅜	57⅜	56¾	Cities Service pfd.	(sh)	1,500.000	N.P.	50cM	11- 1-31	103¼	94½	98¾	84	93⅞	78¼
½	⅛	1,200	⅛	⅛	..	Colombia Syndicate		$2.000.000	$1	....	.....	3¼	.76	2	½	¾	⅛
2¾	1¼	3,300	1¾	1¼	..	Consolidated Royal		$5,527,875	$10	5cQ	10-25-31	8⅞	6¼	11⅛	2½	5⅞	2
⅝	⅛	100	¼	¼	..	Crown Central		.....	....	....	.....	..	..	..	..	..	..
5	2	100	2⅝	2⅝	..	Darby Petroleum (new)		1,019.392	N.P.	....	10-15-30	33½	3¼	26	6½	21¾	4¼
6	1¾	500	2¼	2¼	..	Derby Oil & Refining	(sh)	500.000	N.P.	....	.....	2¼	1	11	2	11	2
40⅛	25	No sales	..	..	..	Derby Oil & Refining pfd.		48.500	N.P.	....	.....	21⅛	7½	44	20¾	60	30
75½	38	3,100	49½	46	45⅝	Gulf Oil Corp.	(sh)	4.504,921	$25	37½cQ	10- 1-31	165	101⅛	209	115	166⅞	58⅛
⅝	1/16	5,600	⅜	¼	1/16	Intercontinental Petroleum		$5,682.000	$5	....	.....	3⅜	1	2⅞	⅜	1⅞	⅜
1⅞	½	No sales	..	..	..	Kirby Petroleum	(sh)	750.000	N.P.	....	.....	3	1¼	3⅝	1¼	3	⅞
1½	1/16	400	⅜	⅜	..	Leonard Oil & Development		$50,000.000	$25	....	.....	9⅜	5⅛	6⅛	1	4¾	½
6¾	2¾	1,000	3¼	3¼	..	Lion Oil & Refining	(sh)	250.000	N.P.	....	10-27-30	43⅞	20	38⅞	18	29	4⅞
25	7⅛	1,800	10	9¼	..	Lone Star Gas	(sh)	5,000.000	N.P.	22cQ	9-30-31	69⅛	48½	67⅞	28	55⅞	19⅝
½	⅛	100	⅛	⅛	..	Magdalena Syndicate	(sh)	850.000	$1	....	.....	1⅞	½	1¼	½	½	⅛
5	2⅝	100	4	4	3	Margay Oil Corp.		160,000	N.P.	....	7-10-30	48½	32	38⅛	14	16	3
4⅞	1½	No sales	..	..	..	Mexico-Ohio Oil Co.		500.000	N.P.	....	.....	8	2¾	6⅜	2¼	7½	1⅜
½	⅛	No sales	..	..	..	Mountain & Gulf		$4.000.000	$1	....	4-15-31	1¾	.76	1½	½	¾	⅜
5⅞	2½	400	3⅜	3¼	..	Mountain Producers		$1,682,182	$10	25cQ	10- 1-31	28⅞	19½	22⅞	7	12⅛	3⅜
1½	½	No sales	..	..	..	New Bradford Oil		$1,095.201	$5	....	4-15-31	5⅝	4¼	5	2½	3½	1⅛
3	¾	No sales	..	..	..	New Mexico and Arizona		$1,000.000	$1	....	.....	11⅞	7⅛	9⅜	2¼	7¼	1½
3¼	1	No sales	..	..	..	North Central Texas	(sh)	400.000	N.P.	....	9- 2-30	14¼	8½	18½	6⅛	11¼	2⅛
½	⅛	2,000	1/16	⅛	..	Pandem	(sh)	489.875	N.P.	....	.....	6	2⅛	3½	½	2½	¼
2	⅝	900	¾	⅝	..	Pantapec Oil	(sh)	1,506.000	N.P.	....	.....	15⅝	8½	10½	1⅞	4⅜	⅜
3⅛	½	600	1	¾	..	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	12⅞	4⅛	8½	1⅛	5⅜	1
3	1	No sales	..	..	..	Ryan Consolidated	(sh)	500.000	N.P.	....	.....	12	4⅛	11	2	8⅝	2
1⅜	¼	No sales	..	..	..	Salt Creek Consolidated	(sh)	1,286.300	$10	....	4- 1-31	7¼	5½	5⅞	1⅞	2½	½
7¾	3¾	700	4¾	4½	3⅞	Salt Creek Producers	(sh)	1,496.859	$10	25c	11- 2-31	35	23⅛	25⅞	9	15¼	5¼
5¼	1/16	3.800	⅝	½	½	Sunray Oil	(sh)	1,163,185	$5	....	4-15-31	..	..	12	5⅝	10	2
1⅞	⅜	1,000	½	½	..	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	9⅛	4¾	6½	1¾	4½	⅝
3½	1⅛	No sales	..	..	..	Woodley Petroleum		$500,000	$1	....	3-31-29	8¼	4⅞	9½	2	5	½
2¼	¼	900	⅝	⅜	..	Y Oil & Gas		100,000	N.P.	....	.....	8⅜	2⅛	2⅞	½	2½	⅜

*Ex-dividend. †Unit of trading less than 100 shares. ‡Payable monthly and monthly stock dividend of one-half per cent. §Paid in lieu of regular cash dividend of 2 per cent.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending Nov. 21)

1931 High	1931 Low	Week ended Nov. 21 Sales	Week ended Nov. 21 High	Week ended Nov. 21 Low	Close Nov. 25	Stocks—		Outstanding capital	Par value	Div. rate	Payable or last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
23	13	2,700	17	16	16	Amerada Corp.	(sh)	922.075	N.P.	50cQ	10-30-31	43⅞	27⅛	42⅝	17½	31½	16½
12⅜	2	800	2½	2	2⅛	American Republics Corp.	(sh)	209.180	N.P.	....	12-31-30	85	51⅛	64¾	12½	37	5⅛
31	9¼	No sales	..	..	..	Associated Oil		$57.260.300	$25	....	6-30-31	53⅜	37½	47¼	34½	51	30
23⅝	9½	13.100	13⅞	11¾	11¾	Atlantic Refining		$66.763.775	$25	25cQ	9-15-31	66⅜	50	77⅞	30	51⅜	16⅝
14½	4¾	9.100	7¼	6½	6⅛	Barnsdall Corp. A		$56,546.600	$25	....	5-11-31	54	20	49⅛	20	34	8⅝
12	5	17,681	7¾	7	7	Continental Oil of Delaware	(sh)	4,741,554	N.P.	....	12-15-27	..	..	47⅞	18	30½	7¾
47	9⅝	7,600	16⅜	15	15	General Asphalt	(sh)	413.333	N.P.	50cQ	9-15-31	94⅞	68	94¾	42¼	71½	22⅜
68½	19	8,100	29	23¾	23½	Houston Oil		$24.968,600	$100	....	10-17-30	167	79	109	26	116⅞	29¼
4⅝	1⅝	500	2⅛	2	..	Indian Refining		$12,564,070	$10	....	10- 1-30	39⅝	9	53	13⅛	17	2
4½	1⅜	300	1⅝	1⅝	..	Louisiana Oil Refining	(sh)	1,190.063	N.P.	....	.....	19¾	9⅜	18	7	12	3½
3¾	½	No sales	..	..	⅞	Maracaibo Oil	(sh)	330.000	N.P.	....	.....	25½	12½	18½	5⅛	10⅜	1⅜
16¾	5	6.800	7½	6½	6¼	Mid-Continent Petroleum	(sh)	1,857.912	N.P.	....	2-16-31	44½	25⅛	39⅞	22⅛	32	11
19½	6½	9,100	8⅞	7¾	7¾	Ohio Oil	(sh)	6.648.052	N.P.	....	3-14-31	84	58½	79⅞	64¼	32	16
35⅛	20	No sales	..	..	..	Pan American P. & T.		$50,084,700	$50	40c	10-20-31	50⅞	38¼	69	40½	46½	42
36½	20	600	23	23	..	Pan American P. & T. "B"		$121,110,650	$50	40c	10-20-31	59⅞	37¾	69¼	40½	67¼	30
4¼	¾	100	1	1	..	Panhandle P. & R.	(sh)	199.370	N.P.	....	.....	21¾	11½	15¼	3	12¾	1⅜
20	9½	No sales	..	..	..	Panhandle P. & R. pfd.		$2.564.400	$100	....	.....	108	70	76	47½	20	47½
16⅝	4¾	31,708	7⅝	6⅝	6⅝	Phillips Petroleum	(sh)	2.593.075	N.P.	....	1- 2-31	53⅞	35¼	47	24¼	44⅜	11½
1½	⅝	2.200	½	⅜	½	Pierce Oil Corp.		$29.622.831	$25	....	.....	5¼	½	3⅜	1	2½	½
3⅜	⅞	900	1⅝	1¼	1⅛	Pierce Petroleum	(sh)	2,500.000	N.P.	....	2-16-31	7	3½	5⅞	½	7⅛	1⅜
20⅜	5½	4.000	7¾	7¼	7¼	Prairie Oil & Gas		$60.848.000	$25	....	3-31-31	68	46	65⅜	40½	54	11¼
26½	7⅝	2,500	10	9	9	Prairie Pipe Line		$101.250.000	$25	....	6-30-31	280	172	65	45	60	16⅝
6	1½	400	1⅝	1½	1½	Producers & Refiners		$37,438.950	$50	....	9-15-23	29⅞	16	25⅞	4	11⅞	1
16	4¼	30	6	6	..	Producers & Refiners pfd.		$2.845.350	$50	....	5- 4-25	49⅝	41	46¾	25½	40	11½
11⅞	5	6.200	6½	5½	5¾	Pure Oil		$75,959.250	$25	....	9- 1-30	31⅝	19	30¾	20	27¼	7⅝
6⅜	⅞	1.200	1⅛	1	1	Richfield Oil (new)		$52,410.875	N.P.	....	.....	56	23	49⅝	20	9¾	4½
10¼	2½	5.400	3	2½	1⅜	Rio Grande Oil	(sh)	1,236.270	N.P.	....	7-25-30	37½	32	42½	15	25¾	5
42⅝	13½	8,200	18⅜	16½	16⅛	Royal Dutch N. Y.	(sh)	611.303	....	$0.938	8- 4-31	64	44⅝	64	43⅛	56½	36⅞
20⅜	5½	10,600	9	7⅞	8⅛	Seaboard Oil of Delaware	(sh)	1,244.383	N.P.	....	10- 1-24	72	4⅝	59⅜	8¼	37	9¾
34	9¾	40	12	12	..	Shell Transport & Trading Co.		£23.985.000	£1	$0.966	7- 6-31	47⅞	41⅜	51½	40⅝	48⅜	26
10¼	3¼	5.700	5	4½	4⅛	Shell Union Oil	(sh)	13.066.497	N.P.	....	6-30-30	39¼	23¼	31⅜	19	25½	5¼
11	4¾	3.400	6⅜	5¼	..	Simms Petroleum		$8.353.620	$20	....	9-15-30	27½	18⅛	40⅛	15	37	5⅝
15⅞	5½	35,300	7¾	6¾	6⅝	Sinclair Consolidated	(sh)	5,500,000	N.P.	....	4-15-31	46¾	17⅝	45	21	32	9¾
103	77	400	82	78	..	Sinclair Consolidated pfd.		$16.025.250	$100	$2Q	11-14-31	110	102½	111	103	112¼	86
12⅞	3⅛	2.300	4½	4	4¼	Skelly Oil		$27.441.250	$25	....	12-15-30	42⅝	25	40½	28	12	10⅛
21	12⅛	33.800	14⅝	12⅞	12¾	Socony-Vacuum	(sh)	31.923.072	$25	40cQ	9-15-31	..	..	..	..	..	..
51¾	28⅛	29 664	34	31¼	31	Standard of California	(sh)	12.594.098	N.P.	62½cQ	12-15-31	80	63	81⅞	51½	75	42½
19	8¼	2.200	12¼	11¼	11½	Standard of Kansas		$8.000.000	$25	....	3-16-31	37¾	15	33¾	18	49	14⅜
52½	28¼	49,100	35	32	32⅜	Standard Oil of New Jersey		$634.999.200	$25	25cQ§	9-15-31	59⅜	37¾	83	49	84⅞	32½
45¼	26¾	400	31⅞	31⅛	..	Sun Oil	(sh)	1,416.869	N.P.	25cQ	9-15-31	77	31½	68⅝	55	70	39
1⅜	½	833	⅝	⅝	½	Superior Oil Corp.	(sh)	766.979	N.P.	....	12-20-30	..	..	24	5¼	9⅜	⅜
36¼	15	28.400	20⅛	18	17¾	The Texas Corporation		$246.204.900	$25	50cQ	10- 1-31	74¾	50	71⅞	50	60½	28¼
6½	2½	1,600	3⅝	3	3	Texas Pacific Coal & Oil Co.		$9.304.890	$10	....	12-31-29	26⅝	12⅛	23⅞	9½	14½	4
18	9⅞	No sales	..	..	..	Tide Water Oil	(sh)	2.191.759	N.P.	....	6-30-31	41½	19⅝	40	14	31	13
83	35	700	45	43	..	Tide Water Oil pfd.	(sh)	19.947.000	N.P.	$1.25Q	11-16-31	100⅛	86	97½	85⅛	94⅞	71
9	3½	10,200	4⅛	3⅝	3⅝	Tide Water Associated	(sh)	5.560.424	N.P.	....	2-16-31	25	14⅜	23½	10	17¾	5⅞
68	20½	2.200	34½	28	29	Tide Water Associated pfd.		$73.284.500	....	$1.50Q	10- 1-31	..	..	90⅞	74⅛	89¾	55
26⅝	11¾	7,100	16⅞	15½	15½	Union Oil of California		$104.342.375	$25	50cQ	11-10-31	58	42⅜	57	42⅛	50	10⅛
25⅛	18½	200	19	18⅝	19	Union Tank Car	(sh)	1,254.048	$100	40cQ	12- 1-31	128½	110	163¾	121⅞	38½	23
7⅜	1	200	2½	2⅜	..	Warner-Quinlan	(sh)	632.948	N.P.	....	7- 1-30	44⅞	26	42⅞	15	27	4¼
9⅜	3	400	5⅛	5	..	Wilcox Oil & Gas	(sh)	428.907	N.P.	....	5-10-28	..	..	29¾	12⅞	21	6½

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus extra dividend of 25 cents.

In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been stock split-ups.

SITE OF DISCOVERY OIL WELL NOW A BARNYARD

(Continued from Page 14)

hurried to Paola, where he began signing up leases.

William G. Bryson, at that time a drilling contractor in Ohio, and now vice president of Black, Sivalls & Bryson, Bartlesville, Okla., was engaged by Mr. Mills at this juncture. Mr. Bryson could build rig, drill, dress tools, weld a drill-stem or perform any other job on the derrick floor, and thus was precisely the sort of man needed by Mr. Mills. He took with him to Kansas the string of cable tools which he had been using in the East. Mr. Mills bought the string and later sold it to McBride & Bloom, pioneer water and gas well drilling contractors in Kansas, who subsequently did much drilling for Mr. Mills.

Installed First Natural Gas Service

During the next five years Mr. Mills, with financial aid obtained chiefly from relatives in the East, put down many gas wells, getting fair producers. He obtained a franchise in Osawatomie, Miami County, made historic by John Brown, and installed in that town the first natural gas distributing system in the state. Widening his operations, he soon was giving similar service in Paola and Spring Hill.

Concerning this period and indicating the difficulties which sometimes threatened to overwhelm him, Mr. Mills has left a record in which he says: "October 12, 1891, I made my first trip through Wilson County and up to the following month secured about 10,000 acres of leased land and made contracts with well-known oil operators of Pennsylvania, C. J. Leeper, W. L. Armstrong, George Wagner, John A. McGhee, Porter Haskell, A. J. Wallace, A. S. Corbett and J. W. Bartlett, to drill test wells in said county provided 40,000 acres could be leased in the county." But before he could get leases on 40,000 acres, Mr. Mills adds, the leases already in hand had expired and once again his hopes of obtaining the financial help he needed were dashed.

But, undiscerned beneath mounting discouragements, events were in the making which would bestow upon Mr. Mills the title "Colonel Drake of the West." In 1888 89 M. C. McSweeney, a drilling contractor, had struck gas within the corporate limits of Cherryvale and Coffeyville. McBride & Bloom had drilled additional gas wells in both these places and at the same time were contracting the drilling of gas wells for Mr. Mills in the Osawatomie-Paola district. Cam Bloom, of this firm, who still resides in Independence, Kans., recalls clearly the train of incidents leading up to the discovery of oil.

Ready to Make Neodesha Test

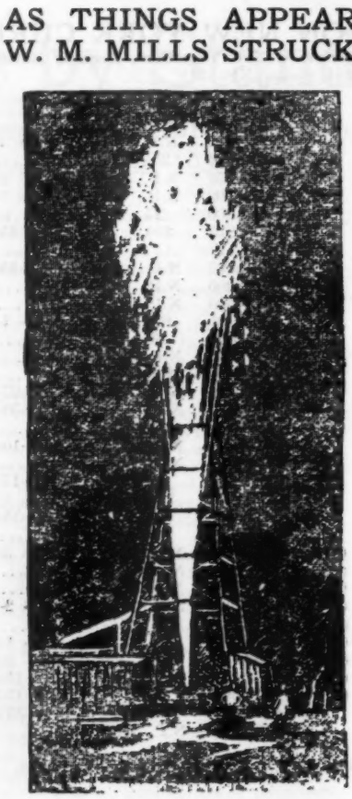
Mr. Mills told Mr. Bloom that he had an eastern company lined up to make a test for a gas supply for Neodesha. In the spring of 1892 the two men went together to that town, but they found its residents suspicious, so that the outlook for obtaining leases was far from bright. Mr. Mills, who was somewhat hotheaded, returned to his home in Osawatomie in disgust. The other man remained, to sound out the sentiment of business men. He inspired some confidence because of his activity at that time in building the gas plant in Coffeyville. In particular he received encouragement from Dr. Thomas Blakeslee; William Hill, banker, and Pierson-Eason, druggists. They assured him that Neodesha wanted a natural gas supply and that the leases desired would be obtained.

Mr. Bloom, anxious not to take any action that might be construed as double-dealing with Mr. Mills, got a power of attorney from the latter, following which a meeting was called for Saturday afternoon in the Pierson-Eason drugstore. At this meeting landowners appeared and 5,000 acres were leased on that day.

Mr. Bloom then returned to Osawatomie and shipped his drilling outfit to Neodesha, after which both he and Mr. Mills went to that town. For convenience Mr. Mills desired to drill the test well inside or near the town. At this juncture T. J. Norman, a blacksmith, offered his 4-acre tract just outside the eastern boundary. The drilling outfit was moved the same day directly from the railroad to the location, a 67-foot derrick was erected and a supply of wood for fuel was hauled in. Here, in a search for gas, was drilled in Mr. Norman's garden patch the well destined to mark the beginning of a new oil empire.

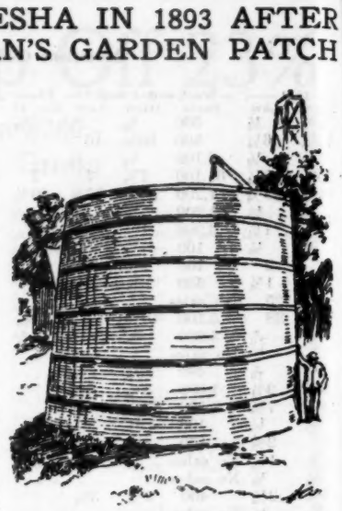
Mr. Bryson at this time was in the employ of McBride & Bloom. The drilling crew was composed of Mr. Bloom and Mr. Bryson, drillers, with Ora Bloom and Myron Ricketts as tool dressers.—Cam and his brother Ora were on the afternoon "tower." Mr. Bryson and Mr. Rick-

AS THINGS APPEARED AROUND NEODESHA IN 1893 AFTER W. M. MILLS STRUCK OIL IN T. J. NORMAN'S GARDEN PATCH



The Johnston well, 3 miles east of Neodesha, spouting water one minute after it was shot at 850 feet with 62 quarts of nitroglycerin, May, 1893.

Mike Roche, who had been drilling wells 25 years when this picture was taken.

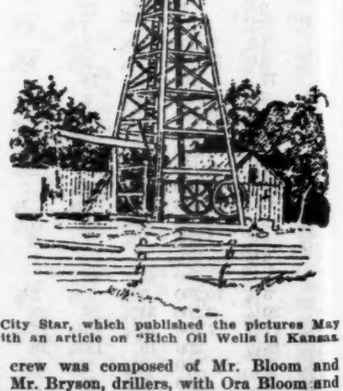


Oil tank of 1,850 bbls. capacity on the Kimball farm, one of the earliest flow tanks in the Neodesha district. While this tank was being filled as slowly as possible work was being rushed on a 36,000-bbl. tank to accommodate the whole field.

Abandoned ice-house converted into a nitroglycerin magazine.

Drilling the Oliver well, near Neodesha, owned by Guffey & Galey.

Backyard scene in eastern Kansas in 1893. Boys caught the oil prospecting fever too.



Demoss well, one of the best in the Neodesha district, drilled by William M. Mills in 1892.

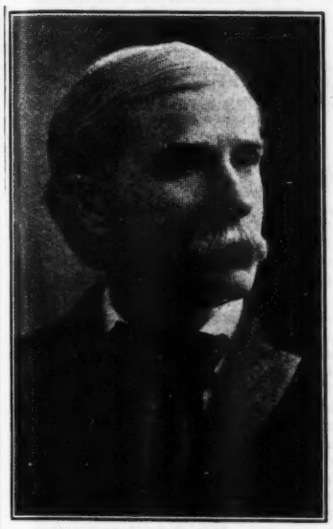
—Courtesy of the Kansas City Star, which published the pictures May 15, 1893, in connection with an article on "Rich Oil Wells in Kansas."

etts were on the morning "tower." The contract required Mr. Mills to pay $2.50 a foot for the hole.

The casing used, 434 feet of 5⅝-inch and 667 feet of 4½-inch, was shipped from Pittsburgh, Pa. It was of wrought iron, with a three-inch weld and of fine quality. A joint is now the property of the International Petroleum Exposition, Tulsa.

Diary Tells the Story

For many years Mr. Mills kept a diary in which he entered briefly each day's activities. It contains many references to the No. 1 Norman. The first one, dated October 28, 1892, reads, "Located well and Bloom hauled two loads on ground." No mention of the date of spudding in is found, but this is not re-



Col. J. M. Guffey

garded as strange, since at this point in the operations the No. 1 Norman was to Mr. Mills just another well in search of gas. Occasional references to the well are found following the first one, and then come these:

"November 25. Drilled through oil sand. Got more oil, but no more gas. I worked at well all day and night."

"November 26. Worked at well in morning. Bryson and I took 10 o'clock train for Osawatomie. Shipped 520 feet of 4½-inch casing to Neodesha."

"November 28. Well commenced flowing oil at noon. I stayed with it all day and night. Gathered 60 gallons of oil and shipped it to Osawatomie."

"November 29. Boys taking down machinery all day."

Across the page bearing the November 28 entry Mr. Mills wrote in big characters with a red pencil, "Oil! This was opening up of Kansas oil field." It is supposed that he made this entry in red at a later time, after the significance of the discovery was realized.

The reminiscences of Mr. Bloom and Mr. Bryson concerning the No. 1 Norman harmonize with the records found in Mr. Mills' diary. Both men, along with Mr. Mills, were on the derrick floor when the hole began to fill with oil. The bit had penetrated at 834 feet what later came to be known as the Bartlesville sand.

Hunt for Gas Had Produced Oil

The hunt for gas had produced what Mr. Mills went to Kansas for in the first place, oil.

The well was capped and the drilling equipment was removed. The derrick was left standing, but on the afternoon of January 29, 1893, a windstorm blew it down, snapping off the drilling nipple, a piece of pipe about three feet long and 5⅝ inches in diameter, projecting above the floor. This allowed oil to flow out and trickle into the Verdigris River. A story that oil had been seen coming from the well was told in Neodesha, but darkness fell before interested folk could go out and see for themselves. The next day curious groups visited the spot, only to find the broken nipple replaced by a new one and no signs of flowing oil. Mr. Bryson could have given the explanation if he had cared to, for in the night he had gone to the well and unseen had made the needed repairs.

Over on the Fall River, a mile northwest of the No. 1 Norman, Mr. Mills started his second well, the No. 1 J. K. Demoss, and again got a producer. By this time he had obtained such leases as he wanted, but he was crippled by lack of funds for development work and even for money to pay what was due on drilling contracts.

The worried man made several trips to Pennsylvania and New York in the hope of interesting capital, with little success. Eastern men had little faith in Kansas as an oil country.

Refused to Be Licked

Refusing to be licked, Mr. Mills kept up his fight to get the money needed. Experienced oil men of financial means whom he sought to interest included William Fee, of Bradford, Pa., who earlier had been a partner of Mr. Bryson in the drilling firm of Bryson & Fee; W. J. Berlin, Elk City, Pa.; J. T. Anderson, Titusville, Pa.; W. P. Logan, Lima, Ohio; H. K. Clark, Clarion, Pa., and B. E. Mitchell, Buffalo, N. Y. He seemed unable to impart his own faith and enthusiasm until he went to Pittsburgh, Pa., with a two-ounce bottle of his Kansas oil and laid his case before John H. Galey, of Guffey & Galey, ex-

John H. Galey
From a photograph taken June, 1914, in the Chanute Field.

tensive oil operators in the East. This was early in 1893. Mr. Galey promptly went to Kansas, made a survey of the situation and took over Mr. Mills' venture, carrying the latter for a one-quarter interest. On February 3, 1894, Mr. Mills sold his interest to Guffey & Galey for $4,000 and he returned to Osawatomie further to develop his gas business there and in Paola and Spring Hill. The sale agreement covering this transaction was found recently in one of Mr. Mills' diaries. Mr. Mills, familiarly known as "Major," devoted the rest of his life to natural gas interests. He died in his home in Osawatomie July 8, 1929. He drilled more than 400 wells in his lifetime. Mrs. Mills, who was Miss Linnie Boyington, still resides in the beautiful Mills homestead in Osawatomie.

After Guffey & Galey had bought out Mr. Mills' oil interests Mr. Galey, remaining in Kansas, embarked on an immense but extremely quiet leasing campaign. Guffey & Galey desired to keep their development plans secret, for it was recognized that if these plans became generally known the price for oil leases would soar and also there would be a rush of eastern operators to the district. With the transfer of the Mills interests Mr. Bryson was engaged by the Pittsburgh firm as field superintendent. This fact was not made known, and it enabled Guffey & Galey in their efforts to avoid publicity. Oil well supplies shipped from the East for the use of the firm were consigned to Mr. Bryson.

Acknowledgment

In the preparation of this story of the No. 1 Norman, many sources of information were drawn upon and extreme care has been exercised to achieve accuracy. It is desired to acknowledge the help received from Mrs. W. M. Mills, Osawatomie, Kans., whose husband owned the well; Thomas M. Galey, Independence, Kans., who has preserved historical data of high value; H. T. Galey, Tulsa, who has compiled a comprehensive history of Mid-Continent oil development; William G. Bryson, Bartlesville, Okla., who for years was associated with Mr. Mills and helped to drill the No. 1 Norman; A. S. Hopkins, president of the Standard Oil Co. of Kansas, active in plans to erect a memorial at the site of the well, and C. A. Bloom, Independence, member of the contracting firm which drilled the well. H. T. Galey is a son and Thomas M. Galey is a nephew of the late John H. Galey, who as a member of the firm Guffey & Galey was an active and adventurous figure in the pioneer days of petroleum. All extended generous co-operation and freely placed their records at the disposal of The Oil and Gas Journal.

While Guffey & Galey agents quietly were acquiring leases on prospective oil land a representative of the Mellon interests appeared from Pittsburgh and set out upon a rival quest for leases, at the same time assiduously disseminating statements designed to show that landowners should refrain from dealing with Guffey & Galey. Excitement spread to other towns in eastern Kansas, resulting in scattered leasing and local promotions.

Colonel Guffey on the Scene

This brought Mr. Galey's partner, Col. James M. Guffey, to the scene. A picturesque figure with his long hair, flowing tie, shining boots and wide-brimmed soft hat, Colonel Guffey was driven in a buckboard by Mr. Bryson to various parts of the field, where he sought to counteract the effect of his competitor's representations. His swift campaign evidently bore fruit, for Guffey & Galey got leases on upwards of 1,000,000 acres of land in Wilson, Allen, Neosho, Elk, Montgomery, Linn and Chautauqua Counties on a strip ranging through 120 miles of territory "on a 22½-degree line," in accordance with the old theory of direction in Pennsylvania.

Almost a year elapsed before either of the oil wells drilled by Mr. Mills was shot. The No. 1 Demoss was shot first, on August 5, 1893. Dynamite was used as a substitute for the nitroglycerin employed in eastern oil fields. The South Kansas Tribune, published in Independence, tells about it in its edition of August 16. Though inaccurate in its details, the item is worth reprinting here as recording the first shooting of an oil well in the state. Under the headline, "An Oil Gusher," the item reads:

"A dispatch from Neodesha last week says: 'One of the wells recently sunk near this city by prospectors was shot with dynamite. In about an hour after the explosion a stream of petroleum shot up to the top of the 60-foot derrick and continued to flow until checked by gauges. The well is over 1,000 feet deep, 8 inches in diameter and is located about one-half mile from the business portion of the city. The earth for several yards about is literally soaked with oil which gushes up outside the casing. Over 1,000 people have visited the well and the company are highly elated over the flattering prospects of a rich oil field. Work is being pushed on several other wells near the city.'"

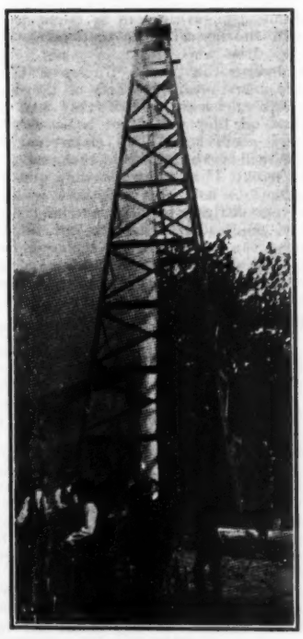
First Mid-Continent Well Pumped

The Demoss well was put on the pump February 28, 1894, the first oil well pumped in the Mid-Continent Field.

The No. 1 Norman was shot October 4, 1893, with 30 quarts of nitroglycerin made for the job by George M. Perry, then in the employ of the Greenwood Powder Co., Webb City, Mo. He also performed the shooting. Shortly afterward Mr. Perry took up oil well shooting as a regular business and he continued in it the rest of his life. Tragically prophetic was a remark he made to a newspaper reporter who watched him shoot a Guffey & Galey well on the Johnston farm near Neodesha on May 12, 1893, and who questioned him about the hazards of handling nitroglycerin. "There's no danger if you don't jar it," he said, "and if you do you'll have no funeral expenses." On December 31, 1925, Mr. Perry was blown to shreds in the accidental explosion of the Turkey Mountain, Okla., magazine of the Illinois Torpedo Co.

The shell was set in the Norman well at 805 to 817 feet. Colonel Guffey, who had arrived from Pittsburgh a week earlier, was among the onlookers when the well was shot.

A prank which Mr. Galey played is related by his son, H. T. Galey, of Tulsa. Among the crowd that gathered to watch the shooting were several persons who had put rocks in Mr. Galey's path. There also was a coquettish young widow who seemed to have designs. Her fluttering wiles annoyed the Pittsburgh oil man, who a few weeks later was to bring a bride from Kentucky. Before the explosive in the well hole was set off Mr. Galey cautioned spectators to stand back. A strong wind was blowing and while seeing it to that his friends took positions on the windward side of the well he slyly managed to station his evil-wishers and the widow on the oppo-



Shooting the No. 1 Norman. From a photograph owned by Mrs. Pearl Pettit, Neodesha, Kans.

site side. A go-devil was dropped down the hole and a subterranean rumble was followed by a geyser of oil, salt water and mud. The spectators were thrilled. Those on the wrong side were not only thrilled but in the next instant they were drenched by the greasy shower from the well.

After the shot had been administered

the discovery well was rated at 12 bbls. a day. It soon settled down to about 5 bbls. and it gradually dwindled until eventually it was producing a half barrel a day. This is what it was yielding in 1917, when water broke into the lower joints of the casing and the well was abandoned by its owner at that time, the Prairie Oil & Gas Co.

The first well drilled by Guffey & Galey after their acquisition of the Mills interests was on the Haag farm, 4 miles northwest of Neodesha. It proved to be a strong gas well. The next test was on the Pierce farm, a quarter mile southwest of the city, and it found oil. Fred M. Smith, previously employed by the Hazelwood Oil Co. in the Bradford, Pa., field, was the first pumper employed by Guffey & Galey in the Neodesha area. He arrived early in 1893 and at first lived in a tent.

Storage and Pipe Line System Built

During 1894 Guffey & Galey built much field storage in addition to two 36,000-bbl. steel tanks in Neodesha, and they constructed an oil pipe line system, the first west of the Mississippi River. Gas was piped into Neodesha and a refinery was projected. The nearest refinery then was in Chicago. The firm's drilling activities expanded widely and rapidly, resulting in the discovery of pool after pool, ranging from Peru to Pleasanton. The suspicion under which oil operators were held by some residents of the region in this period is indicated by the following, quoted from the Pleasanton Herald, regarding a well drilled north of that town:

"Mr. McCarty, of Guffey & Galey, came into the Herald office and said they did not intend to shoot the well, that it was a dry one and they were pulling the casing. Mr. A. J. Baab (owner of the land) was at the works that morning and says he saw the workmen put three oak plugs into the well, each about three feet long, and that they were tamped down solidly by the ponderous drill in order, he supposed, to stop the flow of oil coming to the surface. Now, with all due regard to the statement of Mr. McCarty—he is working for the company—we will say we do not believe his assertion that there is no oil there. On the contrary, it is our opinion that oil in unlimited quantities can be found deeper down in the earth at that place. We believe the whole thing is a put-up job to deceive the people. Guffey & Galey have men in various parts of the county taking leases, and if they had not found oil they would not be so anxious to get more land. They claim that the well will cave in when the casing is taken out. If so, why did they plug the bottom? A hole in a solid rock will not be very difficult to clean out, and when they get ready to develop the oil the casing can be very easily replaced. Guffey & Galey have a rich snap and are working it for all it is worth. Farmers, look out for your own interest."

What to Do With the Oil a Question

In 1895 further oil discoveries throughout eastern Kansas began to attract more and more attention in the East. Guffey & Galey found themselves embarrassed with 150,000 bbls. of oil in storage, an actual production of 800 bbls. daily in the Neodesha Pool and 21 wildcat producers widely scattered elsewhere, good for perhaps 1,000 bbls. more. They had invested about $500,000 in their Kansas venture and were without income. Their difficulties looked insurmountable because of the system of rebates in vogue on the railroads. Efforts were made to obtain favorable rates on crude to Kansas City, Mo., and Omaha, Neb., but without success. It was manifestly impossible to ship either crude or refined oil out of Neodesha except at a loss.

The situation was laid before Henry M. Flagler and John D. Archbold, of the Standard Oil Co., in the Standard's New York offices. The outcome was that the Forest Oil Co., a subsidiary organization in the eastern fields, took over the holdings of Guffey & Galey on October 30, 1895, for $225,000 cash. The deal included 85 oil wells, 12 gassers and 212,341 acres of leases. Colonel Guffey, it appears, was not on friendly terms with Mr. Archbold at this time, so the negotiations were conducted by Mr. Galey.

John Fertig, now residing in Titusville, Pa., was about to start in the business of making gas engines when Mr. Archbold offered him an attractive salary to go to Kansas and take charge of the properties just purchased from Guffey & Galey. He accepted and started for the new field two days later.

Oil Field Workers Arrive With a Bang

Upon his arrival in Kansas Mr. Fertig found the properties run down and records in a state of confusion. Guffey & Galey leases were unearthed from barrels and other queer receptacles. There were about 9,000 of them, 1,000 perhaps alive. Mr. Archbold had directed that all business transactions be conducted not only fairly but generously. Mr. Fertig put in orders for carloads of casing, boilers, engines, rig irons, etc. Along with this equipment from the East came 40 oil field workers—drillers, tool dressers and roustabouts. The westward trip afforded an opportunity for alcoholic relaxation and they improved it to the uttermost. Arriving in Neodesha after an uproarious journey the men marched in swaying lines through the main street vociferously inquiring of the world at large, "What the hell did you bring us here for?" The coaches in which they had ridden had to undergo repairs. Mr. Fertig paid the railroad for the damage done and was reimbursed by Mr. Archbold.

The little pipe line already established was extended northward to Chanute and southward, developing eventually into the vast pipe line system which now spreads its veins throughout the whole Mid-Continent.

The Standard Oil Co. (Kansas) was chartered December 24, 1892. At first it was merely a marketing organization. Stakes for a refinery in Neodesha were driven February 15, 1897, and on May 11 of that year the first batch of crude was charged to stills. The original plant had a crude capacity of 500 bbls. daily. The present one can process 20,000 bbls.

On January 1, 1901, the Prairie Oil & Gas Co., organized for the purpose, took over the Forest Oil Co. western holdings. From that point Mid-Continent oil development, beginning without flourish 40 years ago when W. M. Mills drilled for gas in T. J. Norman's garden on the Verdigris River bank, has formed a marvelous chapter in industrial history.

SOME PROBLEMS OF THE DAY, AND IN OIL

(Continued from Page 18)

recent years following the war, were in that condition which a dispenser of gloom would have desired. Governments, our own heading the list, have sought protection behind tariff walls. We have tried to render financial assistance but have clung doggedly to trade advantages. Eventually the moves and counter moves will have been completed and, let us hope, the forward stride will be resumed.

Call for New Conceptions

The only point I care to make from the foregoing at this time is that the machine age rate of production and the economic results which flow from it require a revision of old theories. I do not mean that the law of supply and demand can be repealed. On the contrary, it must be respected more than ever. But, if possible, some method must be found of dealing with the cause factor, which may mean a change in the written law.

The Oil Business

Then, to be done with all-inclusive discussion and come to a particular phase, I would give you some thoughts on the oil business. I say "business," but that may be a misnomer. We may expect 1931 balance sheets to look like a communist flag, and the common complaint of overproduction applies here. It has been so pronounced as to destroy an element which ordinarily would have made this country an exception to the general rule. Consumption of petroleum products has held up wonderfully well. Domestic consumption appears actually to have increased and is at an all-time peak so far as gasoline is concerned. Exports have fallen off, but world consumption presents an encouraging picture in contrast with other basic industries such as steel and copper. Low prices for petroleum products without corresponding decrease in production costs have made profits in most cases impossible, and have sent oil securities to the lowest level ever known. This, I think, has had more effect upon the prosperity of the country than is generally recognized. In recent years the public has invested heavily in oil securities, as shown by the enormous expansion of plants, and the number of people directly or indirectly dependent upon the profits of this industry is very large. Now these profits have been eliminated, and this has added greatly to the general depression. If this single industry had been able to stand on its feet, as well it might if current production had been further curtailed by 10 per cent, a large general buying power would have been preserved, with far-reaching effect. In actual fact this industry here, in the face of enormous consumption, has contributed perhaps more than any other industry to the distress.

Conservation and Prices

Petroleum is an irreplaceable natural resource, the conservation of which is desired by the government, and yet we have been submerged in a flood of oil. Of course, economic law, meaning the reduction of prices and profits when there is too much product, and their increases in times of scarcity will eventually work a cure, but it is not a pleasant remedy. It simply means that the business remains unprofitable until enough drop out of it, or are forced out, to leave profitable operations for those who remain. It is a hard rule but one that cannot be evaded indefinitely. Already wildcatting has been brought to a halt. There are very few wells drilling outside of proven territory. Millions of acres held under lease have been surrendered. Stripper wells have been abandoned never to pump again. The rule will work. But I wonder if there is no other remedy. I wonder if the industry is to sink lower and lower in search of bottom. Is it actually a time when only the strongest can survive?

The present price of crude oil is not justified by the price of products, and yet it is below the average cost of production. I have made a strong statement but am prepared to prove it. Every well-informed oil man knows it is true. So the question recurs, shall we continue to suffer until the agony ends in extermination or shall we try to do something about it? I am not belittling the efforts that have been made. They have been serious and at times strenuous. They have been efficacious to an extent. But the fact remains that by and large there is no money in the oil business at this time. We are partly on a program of stabilization and partly on the old survival of the strongest basis. We have seen that the latter without the former would eventually result in a sound structure—for those who could last. But if that is our course we must be prepared to wait—and endure.

Valorization

Valorization is a doubtful expedient if broadly and generally applied. There are two schools of thought on the subject and something to be said pro and con. But always there arises the question, what is the proper figure in view of the existing and prospective conditions? And those charged with administering the scheme are usually moved by incentives which result in prices that are too high, so that the last state is worse than the first. In the case of petroleum, however, there are facts of a special nature, and the remedy is not valorization at all. The term has become almost hackneyed, but conservation is good. The conservation of this natural resource has a perfect consonance with price stabilization. Consider the difference between petroleum and cotton or wheat which is produced by annual cultivation. The one fails to repeat itself and is irreplaceable; the other comes at the bidding of man as often as he contributes his labor and is blessed with sunshine and rain. The one is a wasting product; the other is irreplaceable.

And consider the difference between petroleum and solid minerals. For the purposes of this argument there is not so much difference as there is in the other case, but there is a difference. Both are irreplaceable, but their reduction to possession and utilization are attained by different methods. Ores may be mined or kept in place, at the election of the owner, dependent upon commercial aspects; and the operations of a neighboring owner are his own affair. But tapping an oil pool initiates a movement of reservoir energy affecting all owners in the pool. The theory that oil, being a fugacious substance, is the property of the operator who captures it, has been limited inch by inch, until not much of it remains. The contrary exception, that oil in place is a part of the land and belongs to the owner of the land, has gained as it must gain in acceptation. The waste of reservoir energy is being frowned upon more and more. Moderation and fairness are taking the place of the old grab game. Seldom if ever, in my opinion, has a pool been exploited except with enormous waste of reservoir energy in its early development. Even the flush pools that are now in the limelight would be better tended if their allowables were lower. Greedy and short-sighted operators still exist, and they do not fail to inject their theories in bar of conservation and price stability, but happily their number is growing less.

Economic Waste

It is quite true that production, without waste of reservoir energy, may exceed market demand, and this brings us back to the question of economic waste. The facts to which I adverted in the beginning have brought home to thinkers the seriousness of economic waste. Seen now as never seen before are the evils of overproduction and economic waste. In practical effects they are far more serious than restricted production and price inflation. Certainly both extremes are to be avoided. But choice between the two is easy, and so far as petroleum is concerned there is always the fact that proper restraint of production means the conservation of an irreplaceable natural resource which has become essential in modern civilization. There is also the further fact, which will bear repetition here, that usually if not invariably serious waste of reservoir energy is prevented.

The legislature of Texas refused to follow the lead of other states and prohibit economic waste in the production of oil. I know that Texas is a free and independent state, and all that. I know that her people fear the oppression of trusts and monopolies. But, being a Texan by birth and always a Texan, I feel free to say that, in my opinion, the legislature has been inconsistent. For more questionable restrictions upon the production of prime commodities have been countenanced. If as a practical matter economic waste of any product can be prevented there is no reason why it should not be done. It is time to set traditions aside if they do not stand the test of reason. It is time to step upon phantoms and face the crying necessities of today. How many people, how many school children in the State are interested in oil production and the prosperity which flows from that source? If there were none, or if this were not the greatest oil State in the world, the subject might be dismissed or treated lightly. But to dally or dodge when there is so much involved is unworthy of a great people who have traditions that are dearer and higher than the trust busting of 30 years ago.

What is wrong with the modern idea that economic waste is bad? What is wrong with the theory that it affords a proper subject for legislative action? My answer is that the weakness lies only in the effectiveness of a remedy, its feasibility, and that there is no such weakness, as applied to oil production. The case involving the constitutionality of the Oklahoma statute is now before the supreme court at Washington, and we shall soon have the last word on that subject. If for any reason not involving the fundamental conception the Oklahoma law is

struck down a new law will doubtless be enacted. I think the idea has come to stay.

Laws are enacted in a period, commanding what is right and prohibiting what is wrong from the standpoint of that period. Many laws are unchanging in their application. But those which are not of that character, those which deal with commercial relations and things of that kind, become obsolete as commercial forces shift and change.

Antitrust Laws

Some years ago a chief menace in this country was the suppression of competition. It was not a new thing but was a vice which had arisen at various earlier times in different countries. It became necessary to pass stringent laws to prevent combinations in restraint of trade. Now, in 1931, with commodities overproduced, the pendulum has swung in the opposite direction. Antitrust laws still have their place, and against the time when the pendulum swings back again they should be retained. But those which do not fit the times should be modified so that commerce may serve its purpose. Both restraint of trade and unfair competition are evils to be prohibited. The public interest, after all, is the important thing. I think every antitrust law, federal and state, which does not already permit restraints which are in the public interest should be modified to that extent. All of which applies with especial force to the oil industry.

System, Science and Equity in Production

In the producing branch of the oil business much progress has been made by the industry on its own steam. The old practice of producing all the oil that could be produced from every well all the time has been superseded. To avoid the waste of reservoir energy production has been supervised by skilled engineers and various pools have been unitized. Unitization has been by voluntary agreement in which a remarkable spirit of co-operation has been shown. For a time it was feared by some that such agreements might violate antitrust laws and there was some consequent hesitation. But the question was put on the anvil and hammered out. Texas doubtless has the most extreme antitrust laws of any state in the Union, if taken literally. In strict construction it might be said that the pooling of interests in oil production, even when limited to a single structure, is prohibited. But no such construction is allowable. So far as a statute has a meaning of that kind it must be condemned as unconstitutional.

This doctrine was ruled by the Supreme Court of the United States in the Standard Oil dissolution suit. The court said, in effect, that although the Sherman Act in terms prohibited every combination which restrained interstate commerce, it could not be given a literal meaning and thus prohibit such combinations as were not vicious or unreasonable in their nature, because in that case it would unreasonably restrict the right to contract, and would unreasonably operate upon the rights to acquire and hold property. The law was sustained and applied in that proceeding because of the rule of reason. Or, to put it another way, except for the rule of reason the Sherman Act did invade the right to contract and the right to acquire and hold property, but, with the rule of reason read in, it had no such effect and therefore was valid and enforceable. Only the fact that the strict and literal construction was unnecessary saved the act from condemnation.

And precisely the same constitutional limitations apply to state legislation. If a statute of Texas or any other state is susceptible of a construction which would preclude a combination for unit operation, it is, to that extent and in consequence of that very fact, unconstitutional and void. A state court is not at liberty to say that the rule of reason does not apply. It is a Federal question, when properly presented, and neither state statutes nor state constitutions are conclusive. To say that unitization or co-operative development is unlawful would be worse than saying that no grocer may sell his store to another grocer. It would be more like saying that no farmer shall join fences with another farmer to prevent the depredations of stocks.

I may add in this connection, and to the credit of the industry, I think, that a great majority of operators have played the game. They have not only approved and applied the principle of orderly production and the conservation of reservoir energy but have stood militant against freebooters of the old school who would despoil them.

Martial Law

In two states the situation reached such tenseness in the summer that martial law was declared. Those legalistically inclined may feel that such drastic step was not warranted. But it was better than violence and bloodshed. It was better than continued distress. The industry owes a debt of gratitude to Governor Sterling of Texas for his courage and wisdom, and the people of the State at large are likewise indebted. Once military control was established operations on a fair-to-all and sensible basis proceeded. It could not be otherwise except by shut down. Some basis was necessary and it was incumbent upon state authority to work it out. There may be room for improvement. But that is another story.

Further Progress

Finally, before leaving this branch of the subject, I would tell you that the industry is not inert. A lot of thinking is being done, a lot of planning. At a recent meeting of the American Petroleum Institute the board of directors unanimously accepted the principle that each owner of the surface is entitled only to his equitable and ratable share of the recoverable oil and gas and gas energy in the common pool in the proportion which the recoverable reserves underlying his land bear to the recoverable reserves in the pool, and a committee was appointed to prepare and recommend within 60 days a comprehensive program designed to put this principle into practical operation. This committee consists of some of the best minds in the industry and has seriously undertaken the task. You will hear more about it later.

Refining and Marketing

The refining and marketing branches of the business present only a few new problems. There is an excess of refining capacity and many more service stations than the trade requires. But these are ills incident to free competition. When manufacture is excessive prices drop until manufacture becomes unprofitable, whereupon manufacture recedes and surplus capacity is not used. The same principle applies to service stations. They will increase in number until the gallonage per station declines to an unprofitable basis. As long as someone can obtain remunerative employment by running a station there is not much to say about it. There are many grocery stores in the land. Most of them show meagre profits, many of them losses, and yet new stores are opened. In any line of merchandising it is only the efficient that survive and there will be newcomers in the business so long as it offers opportunity. Much as I should like to see fewer stations there is little hope for genuine and wholesome economy at this point. Free and untrammeled competition here gives employment to thousands of people and serves to distribute in expenses what would otherwise be distributed as profits. What applies to merchandizing in general applies here. Losses will slow down installations just as profits stimulate them.

Bootlegging and Tax Evasion

But there is one alarming development in the marketing branch of the business. It has come with the ever increasing sales tax on gasoline. I refer to what is commonly called bootlegging. States have imposed per gallon taxes on the sale of gasoline, and these taxes, being a quick and certain source of revenue, have increased them from time to time until the average tax at this time is substantially the same as the average wholesale refinery price of the product. In theory this tax is passed on to the consumer, and in theory consumer consciousness would eventually prevent the tax from going higher. But something unforeseen has happened. A crop of tax evaders has sprung up. Almost everywhere in the United States gasoline is sold free of tax, or else the consumer pays the tax and it never finds its way to the state or municipality. It is a rascally enterprise, conducted by those who care nothing for the law, and the volume of business thus conducted has assumed such proportions as to affect the whole price structure and make profits to the law abiding well nigh impossible.

When gasoline is selling at the refinery for 4 cents a gallon and legitimate marketers must collect and pay over 4 cents a gallon in taxes it is easy to see the advantage an outlaw has. He buys at 4 cents, undersells the law abiding marketer, evades the 4-cent tax, and puts the difference between what he pays and what he receives in his pocket. The law abiding companies would be happy if they could have a net per gallon profit of half what the bootlegger steals. In addition to outright and flagrant sale of products tax free, this theft is committed in various ways. There are misbilling and concealed cargoes and every other scheme that the law breaker knows. One favorite plan is league with filling station owners who display the signs of reputable companies and are supposed to market their product. The bootlegger makes stealthy deliveries, often in the night; the filling station owner mixes the bootleg product with the product he claims to sell; he reports collection of the tax only on the quantity obtained from the reputable company, though he collects from the consumer on the entire quantity marketed; and thus between the filling station owner and the bootlegger there is pocketed the tax on the bootleg gasoline.

Growth of the Racket

In other cases there is not so much concealment, and daylight deliveries are made with complete understanding between the consumer and the bootlegger that no tax is being paid. The price is shaded so that both culprits benefit by the transaction. In still other cases kerosene and natural gasoline are purchased and mixed by the bootlegger and he makes believe he is not selling a taxable product. The criminal schemes yield money and thus the racket grows. It grows until the law abiding marketer must take notice, which he usually does by wiping out his margin of profit and selling at a loss. And, strange to say, public officials in some places refuse to take any interest. Some express sympathy with the tax evader, either on the ground that the tax is wrong or that the tax evader is an under dog.

Corruption in office has been found. The field is fertile for this kind of thing, and I regard it as one of the most serious menaces that confront the industry. If the tax were moderate in amount the field would be less inviting, because the pecuniary reward would not warrant the risk. But with an ever increasing rate of tax the racket grows by leaps and bounds. It has been noticeable that in states where the tax is high bootlegging has been more extensive. It has been noticeable also that when states have increased the tax the gallonage upon which tax is reported has decreased. In some states an actual decrease in dollars collected has followed an increase in rate.

I cannot believe that the American people will countenance these practices when they are informed. It is one thing to bootleg an outlawed product to people who are out of sympathy with the law, but may it not be quite different where the product is an essential, its sale perfectly legal, and the bootlegging involves a theft from the state? The public must be aroused. These crooks must be run down. Those in office who wink at the offense should be dealt with. Vigilance here is a public service. It is a service to the state and an encouragement to legitimate business. I appeal to everyone who hears me and to everyone who reads this address to help in the movements now under way by industry to stamp out this curse.

Support the state officials who are trying to collect the tax. Co-operate with honest dealers who are trying to make an honest living. Encourage them by your patronage. Take no chances with the shady ilk.

I assure you that this is not a mere academic matter; that the menace is real and serious, and that it is intensified by every increase of the tax.

In Conclusion

I have wearied you, my friends, with

COMPLETING LAST LINK OF NATURAL GAS LINE

Personnel of the organization of Williams Brothers, Inc., pipe line contractors and engineers, at the installation of the last coupling connecting the Panhandle Illinois Pipe Line Co.'s part of the Panhandle Eastern natural gas pipe line from Amarillo, Tex., to Indianapolis, Ind. Top Row (left to right): C. J. Manaugh, general foreman; H. L. (Red) Davis, general foreman; F. B. Cole, chief mechanic; and W. S. Hines, assistant superintendent. Bottom Row (left to right): Emory Devine, general foreman; W. E. Fahey, general foreman; G. S. Connors, general superintendent; H. E. Smith, auditor and office manager; Ivan E. Burton, right of way and claim department.

the things that are worrying me. This is poor pay for your hospitality. Unable to make a speech that would entertain you, I have sought to tell you my troubles. They are also the troubles, or of the troubles, of hundreds of thousands of others. It is not the capitalist, the rich man, the Wall Street banker, that is affected. It is the small investor, the toiler with brain or muscle, the citizens who live and let live.

If I have painted a dark picture for an industry let me assure you that it was not in pessimism. It is just as well to know both sides, and after all Eben Holden's homely philosophy may have been correct when he said that it is good for a dog to have a reasonable amount of fleas because it keeps him from brooding over the fact that he is a dog. The oil business will come back. It stands at the front of advancing industries. It is not decadent. In volume and service it is going forward. To think that it could collapse in a heap like the one-horse shay would be preposterous. Its future means more than its past because its extent and ramifications are greater and its field of service is constantly growing. It would be a sad commentary on Broca's[1] convolution if we could not solve our problems.

[1Paul Broca, a French anthropologist, discovered in 1861 that the seat of articulate speech was in the third convolution of the left frontal lobe of the brain, since known as "Broca's convolution."—Ed.]

THE OIL MAN'S CALENDAR

DECEMBER

2-3—Indianapolis, Ind., Indiana Petroleum Association, Hotel Severin.

7-12—Atlantic City, N. J., trade show, motor and equipment—National Standard Parts Association.

9-11—Atlantic City, N. J., American Institute of Chemcial Engineers.

9-11 — Omaha, Neb., Nebraska Petroleum Marketers, Hotel Paxton.

11-12—Drumright, Okla. Fall Meeting, Mid-Continent District, A.P.I. Division of Production.

28-31—Tulsa, Okla., Geological Society of America, Mayo Hotel.

1932

JANUARY

9-15—Detroit, Mich., convention and road show, American Road Builders' Association, Airport Building.

9-16—New York, National Automobile Show.

11-12—Fargo, N. D., North Dakota Division, Northwest Petroleum Association, Waldorf Hotel.

14-15—Minneapolis, Minn., Minnesota Division, Northwest Petroleum Association, Radisson Hotel.

21-22—Oklahoma City, Okla., Oklahoma Petroleum Marketers' Association.

25-29 — Detroit, Mich., annual meeting, Society of Automotive Engineers.

30-Feb. 6 — Chicago, Ill., National Automobile Show.

FEBRUARY

9 — Louisville, Ky., Kentucky Petroleum Marketers Association, Brown Hotel.

9-10 — Des Moines, Iowa, eleventh annual convention, Iowa Petroleum Association, Fort Des Moines Hotel.

23-25—Columbus, Ohio, Ohio Petroleum Marketers' Association, Deshler-Wallick Hotel.

MARCH

23-25—Detroit, Mich., Michigan Oil Men's Association.

24-26 — Oklahoma City, Okla., American Association of Petroleum Geologists.

APRIL

11-16—Boston, Mass., ninth annual convention, American Oil Burner Association.

21-22—Cleveland, Ohio, semiannual meeting, National Petroleum Association, Hotel Cleveland.

DIVISION OF PRODUCTION TO MEET AT DRUMRIGHT

The fall meeting of the division of production of the Mid-Continent district of the American Petroleum Institute will be held in Drumright, Okla., December 11 and 12 with a full program arranged by W. K. Whiteford, district chairman, and Ernie Bell, secretary. The papers to be presented at this meeting are as follows:

Friday—10 A. M.

Welcome by W. K. Whiteford, Barnsdall Oil Co., Tulsa.

Report of activities of Drumright, Seminole, Burbank and Tonkawa chapters by D. L. Trax, Gypsy Oil Co., Tulsa.

Progress in the Oil Industry, H. M. Stalcup, Skelly Oil Co., Tulsa.

Economic Review of the Oil Industry in Oklahoma, C. B. Mapes, Mid-Continent Oil and Gas Association, Tulsa.

Friday—1:30 P. M.

Some Problems in the Oil Industry, E. R. Filley, The Texas Company, Tulsa.

Stabilizing the Industry, Earl Oliver, Ponca City, Okla.

Factors Influencing Oil Well Potentials in Oklahoma City, C. C. Rae, Skelly Oil Co., Tulsa.

Well Spacing, K. C. Slater, Tulsa.

Friday—6 P. M.

Banquet at the Cushing Hotel, Cushing, Okla.

Speakers, George H. Jennings, state senator from Creek and Payne Counties, Sapulpa, Okla.

L. E. Smith, National Petroleum News, Tulsa.

Frank Carruthers, Norvell & Wilder, Houston, Tex.

Saturday—9 A. M.

American Petroleum Institute Activities, C. A. Young, A. P. I., Dallas, Tex.

Oil Field Transportation Problems, E. L. Bell, Deep Rock Oil Corp., Drumright, Okla.

Flowing of Small Wells (Abstract), R. R. Hawkins, The Texas Company, Tulsa.

Hoisting Equipment for Servicing Wells, L. A. Cook, Shell Petroleum Corp.

High-Pressure Well Connections, Reid Bond and Wallace Collins, Shell Petroleum Corp., Tulsa.

The convention headquarters will be at the Roberts Hotel, Drumright, Okla., and all sessions will be held in the new high school auditorium.

CALIFORNIA REFINERS PRODUCE OWN CRUDE

(Continued from Page 89)

the lead, with Union second and Richfield third on the basis of available showings.

Comparison by Years

A comparison of production and purchases both by major and minor groups expressed in percentages indicates the development of their position over a period of years. The figures show percentages of oil produced and oil purchased relative to total oil handled for the groups, and also the total group production and group purchases in relation to total production in the State as follows:

	Majors		Minors		Proportion of purch. to total Calif. prod.	
	Prod.	Pur.	Prod.	Pur.	Majors	Others
1931*..	60	40	80	20	35.5	11.5
1930..	60	40	86	14	34.9	7.1
1929..	65	35	96	4	30.8	1.2
1928..	64	36	95	5	34.4	2.0
1927..	63	37	89	11	36.5	4.4

Crude Takings Reduced

In consonance with reduced shipping requirements, and restriction upon refinery runs, major companies this year have considerably reduced their takings of crude, but under the stabilization program of last June have endeavored to guarantee a market at posted prices for all oil which has been produced within limits set by the proration committee. As a matter of fundamentals, this measurement, which is regarded as the measurement of markets, has been the real basis of proration.

The objective has been to hold down production to a point so that a market could be assured, largely through major companies, without adding to stocks, and, if possible, permitting a small withdrawal from stocks. It already has been shown that it is expected that stocks of all oil on the Pacific Coast will decline about 8 per cent under the program.

Standard Oil of California this year has been buying at the rate of about 18,000,000 bbls. for the year. Last year it bought a little more than 19,250,000 bbls. Union last year bought a little less than 19,000,000 bbls. and this year, on latest available figures, has been buying at the rate of about 17,000,000 bbls. Shell, next to Standard the largest producer in California, is relatively the smallest purchaser.

ACREAGE-WELL UNIT PLAN FOR EAST TEXAS

A form suggested for determining allowables for the East Texas Field has been made up.

Following are allowable productions in barrels per day for different size tracts with various numbers of wells per tract for determining the allowables for the East Texas Field. Allowables are given for the nearest even barrel.

Wells	Acres in tract									
	10	11	12	13	14	15	16	17	18	19	20
1	80	84	87	91	94	98	101	105	108	112	116
2	116	119	123	126	130	133	137	140	144	148	151
3	151	155	158	162	165	169	172	176	180	183	187
4	187	190	194	197	201	204	208	212	215	219	222
5	222	226	229	233	236	240	244	247	251	254	258

Wells	Acres in tract									
	21	22	23	24	25	26	27	28	29	30
1	119	123	126	130	133	137	140	144	148	151
2	155	158	162	165	169	172	176	180	183	187
3	190	194	197	201	204	208	212	215	219	222
4	226	229	233	236	240	244	247	251	254	258
5	261	265	268	272	276	279	283	286	290	293

Wells	Acres in tract									
	31	32	33	34	35	36	37	38	39	40
1	155	158	162	165	169	172	176	180	183	187
2	190	194	197	201	204	208	212	215	219	222
3	226	229	233	236	240	244	247	251	254	258
4	261	265	268	272	276	279	283	286	290	293
5	297	300	304	308	311	315	318	322	325	329

Wells	Acres in tract									
	41	42	43	44	45	46	47	48	49	50
1	190	194	197	201	204	208	212	215	219	222
2	226	229	233	236	240	244	247	251	254	258
3	261	265	268	272	276	279	283	286	290	293
4	297	300	304	308	311	315	318	322	325	329
5	332	336	340	343	347	350	354	357	361	364

Wells	Acres in tract									
	51	52	53	54	55	56	57	58	59	60
1	226	229	233	236	240	244	247	251	254	258
2	261	265	268	272	276	279	283	286	290	293
3	297	300	304	308	311	315	318	322	325	329
4	332	336	340	343	347	350	354	357	361	364
5	368	372	375	379	382	386	389	393	396	400

Wells	Acres in tract									
	61	62	63	64	65	66	67	68	69	70
1	261	265	268	272	276	279	283	286	290	293
2	297	300	304	308	311	315	318	322	325	329
3	332	336	340	343	347	350	354	357	361	364
4	368	372	375	379	382	386	389	393	396	400
5	404	407	411	414	418	421	425	428	432	436

Wells	Acres in tract									
	71	72	73	74	75	76	77	78	79	80
1	297	300	304	308	311	315	318	322	325	329
2	332	336	340	343	347	350	354	357	361	364
3	368	372	376	379	382	386	389	393	396	400
4	404	407	411	414	418	421	425	428	432	436
5	439	443	446	450	453	457	460	464	468	471

Wells	Acres in tract									
	81	82	83	84	85	86	87	88	89	90
1	332	336	340	343	347	350	354	357	361	364
2	368	372	375	379	382	386	389	393	396	400
3	404	407	411	414	418	421	425	428	432	436
4	439	443	446	450	453	457	460	464	468	471
5	475	478	482	485	489	492	496	500	503	507

Wells	Acres in tract									
	91	92	93	94	95	96	97	98	99	100
1	368	372	375	379	382	386	389	393	396	400
2	404	407	411	414	418	421	425	428	432	436
3	439	443	446	450	453	457	460	464	468	471
4	475	478	482	485	489	492	496	500	503	507
5	510	514	517	521	524	528	532	535	539	542

Leases smaller than 10 acres shall be permitted to produce as a 10-acre tract, the minimum being 80 bbls. with one well, additional wells are allowed 35½ bbls. each.

The maximum size unit shall not exceed 100 acres and one well on same will be permitted to produce 400 bbls., additional wells are allowed 35½ bbls. each.

Offset wells shall produce approximately equal amounts of oil and shall be governed by the allowable of the smaller tract.

A court of equity shall be established at military headquarters with General Wolters as judge.

When production is more or less than the allowable for the field, same shall be adjusted on a percentage basis.

HIGHER GASOLINE TAX MAY LOWER REVENUES

(Continued from Page 95)

from the Pennsylvania refining industry, and into other states; for the Pennsylvania refiners would be compelled to pay the tax, while refiners in other states would sell to whoever bought and if the buyer bootlegged his gasoline into Pennsylvania, dodging the tax, why, it would be just too bad—that's all. The experience of all high tax states justifies the statement that at least 40 per cent of the business in Pennsylvania now in the hands of Pennsylvania refiners would ultimately be driven outside. You would be creating more unemployment than you would be relieving.

"In conclusion, a word in behalf of this oil industry of Pennsylvania. The oil industry, which is now by a long way the greatest industry in this country, with the sole exception of agriculture, had its birth in Pennsylvania. For many years this State was the world's oil headquarters; much of its wealth, its industrial importance, its capital resources and its continuous growth in population have been due to its leadership in this industry. Although Pennsylvania's production of petroleum has ceased to be dominant, and although among the petroleum producing states Pennsylvania has dropped to eighth place, it still continues to lead in the department of refining, ranking fifth among all states in rated refining capacity. Only California, Texas, Oklahoma and New Jersey surpass it in this regard. Although Pennsylvania produces only about 1.4 per cent of the country's petroleum, its refining capacity is 6.4 per cent of the country's total, according to the U. S. Bureau of Mines. In number of refineries it ranks fourth among all states.

State Still Holds Leading Place

"Pennsylvania, in short, although it has ceased to be a really important producer of petroleum, still holds its place among leaders of the industry. Its citizens probably have a greater investment in the industry than have those of any other state, possibly excepting New York. The tradition of Pennsylvania leadership still holds; Pennsylvania's citizens by tens of thousands are owners of a great share in the national petroleum industry, with its $12,000,000,000 of capital investment; other tens of thousands of them are employed by the great Pennsylvania oil business.

"That the State has been able thus to maintain its place in the industry despite the near exhaustion of its petroleum resources attests the vigor and enterprise with which the business has been conducted here. Pennsylvania produces 1.4 per cent of the country's petroleum, but refines 6.4 per cent; whereas Oklahoma, producing 24 per cent, refines only 8.6 per cent; Texas, producing 32 per cent, refines only 21 per cent; California produces 25 per cent, refines only 23 per cent."

MAGNOLIA GETS NAVY CONTRACT

WASHINGTON, D. C., Nov. 28.—A contract for 594,000 bbls. of Grade "C" fuel oil has been awarded the Magnolia Petroleum Co. of Dallas, Tex., the purchase price being $323,800. The oil must be delivered at Texas and Gulf ports between January 1 and June 30, 1932.—C. E. K.

T. A. BARRY, JR., DEAD

Thomas A. Barry, Jr., 29 years old, assistant superintendent of the gasoline department of the Netherland Colonial Petroleum Co. at Palembang, Dutch East Indies, was killed in a motorcycle accident November 23. He leaves a wife, and daughter 7 months old, father and mother, Mr. and Mrs. T. A. Barry of Bristow, Okla., brother and two sisters, Mrs. C. H. Robinson, and Helen Barry.

OKLAHOMA GASOLINE QUOTATIONS LOWER

(Continued from Page 12)

the table so that the operator could show a profit. Due to this condition it is believed that several skimming plant operators not only in Oklahoma but in other parts of the Mid-Continent will find it expedient to either shut down their plants or curtail operations to the point where sales can be confined to local points where the netback to the plant is greater than in interstate shipments.

The relation between cost and realization to the refiner with a well-balanced skimming and cracking operation is of course more satisfactory than in the case of the skimming plant. However, the operators of several of these plants are in the red and some curtailment in these operations is also to be expected provided present posted crude oil schedules are continued.

With the plants of the lowest priced sellers shut down and curtailment at other refineries, the recent decline in prices could be stopped with a possibility of a price recovery in gasolines.

Gasoline and Naphtha

U. S. Motor gasoline dropped below 4 cents the latter part of last week. This grade generally was being quoted to the trade at a low of 3¾ cents the first of this week with quotations up to 4¾ cents for high octane grades. Distress material, principally in the hands of brokers, was being widely quoted as low as 3½ cents. This low-priced material usually had a low octane rating or no rating was given. Some of it was long material in the hands of brokers who were forced to take delivery by refiners. As previously explained, it is not believed that this gasoline will continue to be as important a factor in the market over the first half of December as it was over the last half of November due to plant shutdowns.

The wide spreads in prices also applied to the higher gravity gasolines. The 60-62, 400 endpoint grade was sold basis Group 3 as low as 4 cents with other refiners selling a high octane grade to regular customers at 4¾ cents. Sales of 375 endpoint at 4½ cents were reported and 350 and 360 endpoint grades were sold under 5 cents. Naphtha prices have declined along with U. S. Motor gasoline and the 50-52, 450 endpoint grade was sold the first of the week under 4 cents.

Kerosene

The domestic buying of kerosene by large refiners and scattered purchases in the Mid-Continent for delivery to the coast by export buyers continue to maintain a tight tank car market on kerosene. The Gulf Refining Co., The Texas Company and other large companies have been buying kerosene from North Texas refiners for delivery to their stations in that territory. These refiners manufacture an excellent grade of kerosene. The same situation applies to a number of smaller refiners in other parts of the Mid-Continent.

Although there was still some 41-43 water white kerosene available in Oklahoma the first of the week at 2½ cents, most refiners are quoting 2¼ and up to 2½ cents for the higher gravities. There has been no special activity in northern shipments.

Fuels

The principal concern of refiners in Oklahoma at present in regard to fuels is the renewal of railroad contracts which expire within the next few weeks. These contracts on the whole have been attractive over the past year. Many of the agreements guaranteed the refiner a minimum price of 65 cents and this price has been obtained despite the fact that it has been from 20 to 30 cents a barrel above the open market quotations for the same grade fuel.

It is understood that at least one railroad buyer has indicated that the minimum price should be reduced to 45 cents per barrel with the refiner getting 60 per cent of any advance in the posted price for 36 gravity crude oil. Refiners are asking for 50 and 55-cent minimum guarantees.

The position of the refiners is that it would be foolish for them to consider a long-time contract based on present open market quotations which reflect an abnormal condition in the petroleum world which it is believed will change materially over the next year. Selling fuel oil at 20 to 45 cents per barrel is out of line with present crude oil costs and will change with a return to normal conditions in industry.

It is also pointed out that the railroads have more at stake than the purchase of a cheap fuel. The expansion of pipe line facilities, including the completion of two gasoline lines to middle western points, threatens the continuance of the Mid-Continent refining industry the largest single customer of the southwestern railroads. If the refiners are unable to obtain an equitable price for their fuel oil, it will emphasize the necessity of either relocating plants in the population centers of the Middle West or increasing cracking capacity and do away with fuel oil production, moving the gasoline output to consuming centers by pipe line. The railroads have indicated that they appreciate this situation and its direct importance to their own business and it is believed that a satisfactory contract will be worked out before the end of the year. It is probable that the quantities purchased under the contract agreements will be less due to reduced operations of the carriers.

The published price of fuel oil under 18 gravity was reduced in this issue to a low of 22½ cents from 25 cents. This grade covers the output of cracking stills and reducing stills which is suitable for railroads, public utility plants and industrial buyers.

Some price reductions were also effective in the higher gravities. The 28-30 zero grade continues firm. Although sales of U. G. I. gas oil were reported last week on a basis of 1¼ cents, Group 3, sellers in Oklahoma the first of the week were continuing to quote 1⅜ cents. Limited quantities of straight reduced gas oil with a cold test above 70 were sold at 1¼ cents.

The 32-36, zero to 10, gas oil of low flash continued firm at a low of 1⅝ cents. The higher gravity grades of furnace oils were more freely available at prices which ranged from 1¾ to 2 cents.

Natural Gasolines

Grade AA was quoted Tuesday in Oklahoma at 3¼ to 3⅜ cents and new buying was light. The Grade A, which is scarce, dropped to 3½ cents and the BB and C grades, which are increasing in quantity due to the colder weather, were quoted at 3 cents. These Oklahoma prices except for Grades BB and C could be shaded in Texas. Sellers are expecting the December buying to make its appearance before the end of the week. There have been indications that the total of these purchases will be substantially less than they were in October and November.

RESULTS OF VAPOR LOCK EXPERIMENTS ANNOUNCED

"One of the handicaps which a thoroughly efficient fuel system must overcome is that of variations in temperature of the gasoline," says a bulletin issued by J. M. Evans, manager of sales engineering and development for the Associated Oil Co. The bulletin, based on results of extensive tests in the Associated Oil Co.'s motor testing laboratories at the Avon refinery, continues:

"Ordinarily the temperature of the gasoline when it reaches the carburetor is from 30 to 80 degrees higher than the temperature of the atmosphere. In the average car the difference in temperature is about 45 degrees, but in many pieces of equipment the fuel system is not so efficiently designed and installed and the temperature runs to the higher extreme. When such a car encounters unusually hot weather there is difficulty from vapor lock. The temperature of the gasoline is so high by the time it reaches the carburetor that it tends to boil in the fuel lines just ahead of the carburetor.

"Few motorists are familiar with this condition and are much puzzled by the trouble it gives. The remedy in ordinary cases is to permit the fuel system to cool, but in extreme cases it is sometimes necessary to relocate the fuel line or the carburetor in order that the fuel system may not become overheated. In extreme cases the formation of gases due to vapor lock forces the liquid gasoline back into the tank and destroys the priming of the fuel pump. In less severe cases when the formation of the gas is in smaller quantities, gas instead of gasoline passes through the carburetor jet and causes the engine to sputter or misfire, frequently to such a degree that the motor actually dies."

NATIONS ASKED TO JOIN IN GAINING UNIFORMITY

The national standardizing bodies of 21 leading industrial countries have been invited to participate in an international effort to gain greater uniformity in methods of testing petroleum products and lubricants under the auspices of the International Standards Association, according to a statement issued by the American Standards Association, to which the secretariat for the work was assigned by the international body. The invitations forwarded to the foreign standardizing bodies asked for the appointment of petroleum technologists as official representatives on an international committee to deal with the subject. The nomenclature of petroleum products will also be studied by the committee.

The widespread commerce between nations in gasolines and lubricating and fuel oils has made the need for international uniformity in nomenclature and in methods of determining the physical and chemical properties increasingly important during the past few years, according to the American Standards Association.

The nations to which invitations were issued are: Australia, Austria, Belgium, Canada, Czechoslovakia, Denmark, Finland, France, Germany, Great Britain, Holland, Hungary, Italy, Japan, Norway, Poland, Rumania, Sweden, Switzerland and Russia. Austria, France, Germany, Japan, Holland, Hungary, Switzerland and Russia already have indicated a desire to participate in the work.

The national standardizing bodies of most of these nations are, together with the American Standards Association, member-bodies of the International Standards Association, which has its headquarters at Basle, Switzerland. Dr. R. P. Anderson, of the American Petroleum Institute, has been appointed as the American representative on the international committee.

CALIFORNIA SENATOR TO OFFER OIL TARIFF

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Nov. 30.—Senator Shortridge of California will reintroduce his bill for the regulation of commerce in petroleum and products with a provision for a tariff duty of $1 per barrel on crude and 50 per cent ad valorem on products. When the bill was introduced in the last session there was not much time to have it reported by a committee. The bill was referred to the commerce committee of which Senator Johnson of California was chairman and after hearings were held several senators insisted that as it involved the raising of revenue it should go to the finance committee presided over by Senator Smoot. This suggestion precipitated a discussion and Senator Johnson declared as the Senate had referred the bill to his com-

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 93)

ASSOCIATED OIL CO. PRICES

Associated Oil Co. prices effective June 20 are as follows:

Ventura Avenue, 23 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.

Kettleman Hills, 30 gravity and above, 66 cents.

Potrero, 24 gravity, 69 cents, with 2 cents added for each degree upward to 34 gravity, which is 69 cents.

UNION OIL CO. OF CALIFORNIA

Crude Oil Prices for Its Purchases at the Well for Crude Produced in Strict Accordance With the Production Allocations Made by the California Statewide Curtailment Committee Effective 7 a.m., June 20, 1931

(All gravities above these quoted take highest price for that field)

Gravity °A.P.I.	Signal Hill	Alamitos Heights, Seal Beach	Huntington Beach	Athens, Rosecrans, Dominguez	Torrance	Santa Fe Springs	Playa Del Rey*	El Coyote, Richfield	Montebello	Santa Paula	Orcutt	Coalinga	Lost Hills	McKittrick, Kern River, Sunset-Midway, Elk Hills, Buena Vista Hills	Gravity °A.P.I.
11-13.9														$.50	11-13.9
14-14.9	$.65	$.65	$.65	....	$.65	....	....	$.65	$.65	$.65	$.55	$.55	$.55	.55	14-14.9
15-15.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	15-15.9
16-16.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	16-16.9
17-17.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	17-17.9
18-18.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	18-18.9
19-19.9	.65	.65	.65	....	.65	....	$.65	.65	.65	.65	.55	.55	.55	.55	19-19.9
20-20.9	.65	.65	.65	....	.65	....	.65	.65	.65	.65	.56	.55	.55	.55	20-20.9
21-21.9	.65	.65	.65	....	.65	....	.66	.66	.65	.65	.57	.55	.57	.55	21-21.9
22-22.9	.65	.65	.65	....	.66	....	.67	.67	.65	.65	.59	.55	.59	.56	22-22.9
23-23.9	.67	.67	.67	....	.67	....	.68	.68	.65	.65	.61	.55	.60	.58	23-23.9
24-24.9	.69	.69	.69	$.69	.68	$.65	.69	.69	.65	.66	.63	.55	.62	.61	24-24.9
25-25.9	.71	.71	.71	.71	.70	.65	.70	.70	.65	.68	.65	.57	.64	.64	25-25.9
26-26.9	.73	.73	.73	.73	....	.65	....	.72	....	.70	.67	....	.66	.66	26-26.9
27-27.9	.75	.75	.75	.75	....	.68	....	.74	....	.72	....	....	.67	.68	27-27.9
28-28.9	.77	....	....	.77	....	.71	....	....	....	.74	....	....	.69	.71	28-28.9
29-29.9	.79	....	....	.79	....	.73	....	....	....	.76	....	....	.71	.74	29-29.9
30-30.9	.81	....	....	.81	....	.75	....	....	....	.78	....	....	.72	.76	30-30.9
31-31.9	....	....	....	.83	....	.78	....	....	....	....	....	....	....	....	31-31.9
32-32.9	....	....	....	.85	....	.80	....	....	....	....	....	....	....	....	32-32.9
33-33.9	....	....	....	.87	....	.83	....	....	....	....	....	....	....	....	33-33.9
34-34.9	....	....	....	.89	....	.85	....	....	....	....	....	....	....	....	34-34.9

*Subject to a gathering charge of 5 cents per barrel.

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Read the Classified Ads on pages 76 and 77

mittee and he had begun work on it he did not intend to relinquish it. This was the situation when Congress adjourned.

However, the bill will again be introduced and then its reference to a committee will be fought out on the floor of the Senate. As a proposed regulation of commerce it would go to the commerce committee but as it also provides for revenue it will be contended that it should go to the finance committee. Senator Shortridge insists that as the revenue feature is "incidental" it is subordinate to the regulation of Congress.

As measures for raising revenue must under constitutional provision originate in the House of Representatives there will be another element to prolong discussion.

Late Fields

(Continued from Page 24)

The new operations were reported in nine counties. McPherson County leads with three, Sedgwick and Russell Counties each have two, with Butler, Phillips, Rooks, Rice, Stafford, and Woodson Counties, one each. During the same week nine oil wells were completed with an initial production of 3,285 bbls. a day; two were gas wells with an initial output of 18,000,000 feet.

Gypsy Oil Co.'s No. 1 Stockel, C NE NW, Section 31-19-10w, is a new location near the Schurr Pool in Rice County. It is located about 3 miles northeast of Hilligoss and others' well and about 5 miles north of production in the Schurr Pool.

In the Schurr Pool, near Raymond, in Rice County, C. B. Davis and Wixon and others' No. 1 Kelley, SW cor. NW, Section 22-20-10w, is the only active operation. It found 750,000 feet of gas at 2,993 feet.

Skelton Oil Co.'s No. 1 Ott, C SE SE, Section 16-19-14w, Barton County wildcat, which had a showing of oil in the Lansing lime at 3,225-28 feet, was drilling deeper at 3,275 feet. The test had 200 feet of fluid in the hole, part of which was oil and part water. The 6-inch casing was landed at 3,145 feet.

TANK WAGON CHANGES

(Continued from Page 94)

gasoline tank wagon and service station prices one-half cent in southern Idaho except Twin Falls where advance applied only to tank wagon.

Standard Oil Co. of Louisiana advanced gasoline tank wagon and service station prices one-half cent at Bristol, Tenn., effective November 21.

Atlantic Refining Co. advanced gasoline tank wagon and service station prices 1 cent in Pennsylvania and Delaware.

Standard Oil Co. of New Jersey advanced gasoline tank wagon and service station prices one-half cent in entire territory December 1 except Delaware where advance was 1 cent.

CRUDE OIL PRICE CHANGES

The Joseph Seep Purchasing Agency, effective December 1, reduced the price of Pennsylvania grade oil in Buckeye Pipe Line lines 10 cents per barrel, making the new price $1.40 per barrel.

ELECTRIC AIR HEATERS

A line of horizontal electric air heaters for industrial applications is announced by the General Electric Co. Five ratings are listed: 1,000 watts at 115 volts, and 1,000, 2,000, 3,000 and 4,500 watts at 230 volts. The heaters consist of a number of General Electric strip heaters mounted in black japanned, perforated, pressed steel cases. Each is equipped with 3 feet of armored cable and a three-heat snap switch mounted on a standard conduit box. They are designed for wall or floor mounting.

CALIFORNIA OIL FIELD OPERATIONS FOR OCTOBER, 1931

According to figures collected by the American Petroleum Institute, Pacific Coast office, the total production of crude oil in California for October amounted to 15,651,983 bbls., an average of 504,903 bbls. per day. This is a decrease of 1,117 bbls. per day under September production.

Total stocks of crude and all products in Pacific Coast territory increased during the month 563,214 bbls. The total stocks at the end of the month were 169,341,178 bbls. The total stock decrease for 1931, up to October 31, was 11,691,963 bbls.

CRUDE PETROLEUM PRODUCTION
(Figures of production and stocks are in barrels of 42 gallons)

	Barrels per month	Daily average Oct., 1931	Daily average Sept., 1931	Daily average Oct., 1930
Group No. 1:				
Coalinga	234,604	7,568	7,710	9,285
Elk Hills	398,689	12,861	12,261	17,500
Fruitvale	77,455	2,499	2,379	2,601
Kern River	312,800	10,090	10,288	12,235
Kettleman Hills	1,855,875	59,867	61,817	24,535
Lost Hills-Belridge	289,809	9,348	9,330	4,672
McKittrick	56,383	1,819	1,853	3,911
Midway-Sunset	1,543,481	49,790	49,368	59,432
Mount Poso	266,056	8,582	9,089	8,533
Round Mountain	42,307	1,365	766	4,041
Wheeler Ridge	16,368	528	525	587
Group No. 2:				
Capitan	.....	.....	.....	.....
Elwood	774,353	24,979	25,646	35,988
Rincon	55,261	1,783	1,869	2,359
Santa Barbara	13,175	425	560	.....
Santa Maria	86,652	2,795	2,813	2,552
Summerland	4,575	148	151	256
Ventura Avenue	1,230,428	39,691	40,293	46,121
Ventura-Newhall	107,679	3,474	3,394	4,873
Watsonville	1,938	62	63	62
Group No. 3:				
Coyote	323,202	10,426	10,279	10,090
Dominguez	386,718	12,475	10,815	10,289
Fullerton (Brea Olinda)	298,049	9,615	9,741	11,046
Huntington Beach	662,965	21,386	19,867	28,368
Inglewood	423,311	13,655	13,773	15,043
Lawndale	11,329	366	379	352
Long Beach	2,363,383	76,238	79,291	98,090
Los Angeles-Salt Lake	36,708	1,184	1,156	1,424
Montebello	197,967	6,386	6,321	7,146
Newport	190	6	13	40
Playa Del Rey	711,253	22,944	22,254	25,330
Potrero	38,539	1,243	1,190	1,626
Richfield	207,672	6,699	6,284	8,747
Rosecrans	104,639	3,375	3,409	6,282
Santa Fe Springs	1,895,519	61,146	62,255	94,697
Seal Beach	392,858	12,673	11,632	13,746
Torrance	188,549	6,082	6,975	10,311
Whittier	41,344	1,330	1,311	1,355
Total	15,651,983	504,903	506,020	588,519
September	15,180,610	506,020		
Decrease	*471,373	1,117		

*Increase.

PACIFIC COAST TERRITORY PETROLEUM STOCKS

	Oct. 31, 1931	Sept. 30, 1931	Oct. stock increases	Oct. 31, 1930
Heavy crude, heavier than 20° A.P.I., including all grade fuel	102,739,329	102,809,871	*70,542	109,299,903
Refinable crude, 20° A.P.I. and lighter	39,948,231	40,345,887	*397,656	42,660,721
Finished gasoline, engine distillate and natural gasoline	15,548,504	15,073,125	475,379	16,174,546
Naphtha distillates	3,246,287	2,809,534	436,753	2,380,615
All other stocks	7,858,827	7,739,547	119,280	8,984,706
Total all stocks	169,341,178	168,777,964	563,214	179,500,491

*Decrease.

OIL FIELD DEVELOPMENT

	New rigs up	Active drilling	Completed	Daily initial output	Active producing	Abandoned wells Drillers	Abandoned wells Producers
Group No. 1:							
Buttonwillow Gas Field	...	2	..	.....	.....	..	..
Coalinga	...	...	..	.....	624	..	..
Elk Hills	...	...	..	.....	207	..	1
Fruitvale	3	1	..	.....	18	..	..
Kern River	...	1	..	.....	945	..	..
Kettleman Hills	1	9	1	15,000	23	..	..
Lost Hills-Belridge	...	5	..	.....	193	..	..
McKittrick	...	1	..	.....	121	..	..
Midway-Sunset	1	1	1	175	1,751	..	..
Mount Poso	...	3	..	.....	72	..	..
Round Mountain	...	1	..	.....	7	..	..
Wheeler Ridge	...	...	..	.....	34	..	..
Group No. 2:							
Capitan	...	...	..	.....	.....	..	..
Elwood	2	3	..	.....	49	1	..
Goleta Gas Field	...	2	..	.....	1	..	..
Rincon	...	1	..	.....	34	..	..
Santa Barbara	...	1	..	.....	4	..	..
Santa Maria	...	1	..	.....	170	..	..
Summerland	...	...	..	.....	63	..	..
Ventura Avenue	...	8	1	1,195	139	..	..
Ventura-Newhall	...	4	1	95	386	1	2
Watsonville	...	...	..	.....	6	..	..
Group No. 2:							
Coyote	1	3	..	.....	158	..	..
Dominguez	1	3	2	1,548	57	..	..
Fullerton	...	1	..	.....	340	..	..
Huntington Beach	1	1	..	.....	307	..	..
Inglewood	1	...	1	138	106	..	..
Lawndale	...	...	..	.....	7	..	..
Long Beach	4	15	3	310	870	3	..
Los Angeles-Salt Lake	...	...	..	.....	257	..	..
Montebello	...	1	..	.....	167	..	1
Newport	...	2	..	.....	1	..	..
Playa Del Rey	2	2	1	330	173	1	1
Potrero	...	1	..	.....	11	..	..
Richfield	...	...	..	.....	154	..	..
Rosecrans	...	1	..	.....	66	..	4
Santa Fe Springs	...	1	1	97	428	..	2
Seal Beach	...	...	1	65	81	..	..
Torrance	...	...	..	.....	342	..	..
Whittier	...	...	..	.....	172	..	..
Miscellaneous drilling	6	76	..	.....	.....	7	..
October	23	151	13	18,753	8,544	13	12
September	18	147	11	7,911	8,617	16	23
Increase	5	4	2	10,842	*73	*2	*11
Average for year 1930	80	434	63	48,710	9,632	21	27
Average for year 1929	109	610	76	100,625	10,770	26	18
Average for year 1928	107	520	59	56,802	10,823	15	25
Average for year 1927	97	404	75	39,992	11,276	23	21
Average for year 1926	95	422	76	32,635	11,288	24	17

*Decrease.

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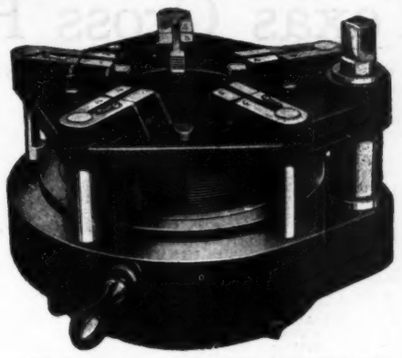
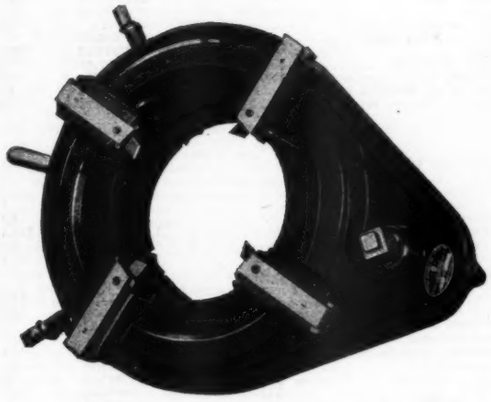


"TOLEDO" No. 3 GEARED ADJUSTABLE THREADING DEVICE, Cap. 4½ to 8 inches.



"TOLEDO" No. 80 AUTOMATIC PIPE CUTTER
Capacity 4½ to 8 inches incl.

Old half worn out pipe tools soon eat up the profit on piping jobs. They are a constant source of worry and a bill of expense to their owners. "TOLEDOS" give greater satisfaction and will out-live ordinary pipe tools. "TOLEDO" threading and cutting equipment can be repaired and put in good order to prolong their efficiency. A repair department at the "TOLEDO" factory is maintained for your convenience.

If you are not already "TOLEDO" equipped specify "TOLEDOS" on your next job, you are assured of better results at lower maintenance cost. If you are a user of "TOLEDO" equipment in need of repairs send them to us for a thorough reconditioning.

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO

"TOLEDO"
TOOLS FOR EVERY PURPOSE

Valves *for pipe lines*

KENNEDY Valves can always be depended upon to close tightly, release promptly at the first turn of the valve wheel, and to open or close without sticking or binding whether operated frequently or at long intervals.

The large Kennedy line includes a suitable size and type for practically every oil industry requirement at 400-lb., 700-lb., 1000-lb. and 1600-lb. pressure, and also for lower pressures and for extreme pressures up to 2500-lb.

Kennedy Malleable Iron Screwed Pipe Fittings, too, are thoroughly reliable and will help to speed up your pipe fitting job.

The Kennedy Valve Mfg. Co., Elmira, N. Y.
Branches in principal cities.

Send for Kennedy Catalog

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

Texas Gross Production for Third Quarter, 1931

Gross receipts tax on crude oil production in Texas, quarter ending September 30, 1931:

Name and address—	Barrels	Value
A		
Abercrombie, J. S., Co., Inc., Houston	156,084.76	$58,633.62
Ada Belle Oil Co., Batson	14,035.29	6,400.09
Adams & Lyles, Lockhart	3,896.34	1,555.21
Adams & Lyles, Lockhart	1,404.55	645.66
Atlas Production Co., Burkburnett	493.42	270.95
Aarco Oil & Gas Co., Baltimore, Md.	4,529.76	2,207.52
Alco Royalty Corp., Tulsa, Okla.	33,270.49	12,467.80
American Refining Properies (MJB), Wichita Falls	2,391.39	1,080.95
American Refining Properties (NBC)	670.44	350.52
American Refining Properties (RMW), Wichita Falls	1,700.78	792.58
Allen, W. E., receiver L. C. Turman, Fort Worth	103,406.04	30,027.70
Anderson Drewery Corp., Cisco	4,733.00	2,314.16
Archer Oil Producing Co., Dallas (6-30-31)	695.84	404.83
Art, J. L., Wichita Falls	436.95	216.49
Argus Oil Co., Austin	105.93	48.27
Arab Gasoline Corp., Eastland	881.26	443.22
Adams, T. C., Bethany, La.	22,924.22	5,794.58
Albritton, F. J., Markley	932.20	491.44
Andrews, W. R., et al, Breckenridge	364.43	218.72
Alworth-Stevens-Hild Co., New York, N. Y.	665.72	356.79
Arrow Refining Co., The, Fort Worth	36,134.37	6,215.42
Andrews Petroleum Corp., New York, N. Y.	3,048.37	1,633.63
A. & P. Production Co., Houston	27,651.95	13,993.40
Arco Oil Co., Wichita Falls	19,353.38	7,517.54
Alamosa Oil Co., Amarillo	2,138.03	756.85
Alamosa Oil Co., Amarillo	5,267.81	1,141.37
Acorn Oil Co., Beaumont	6,406.87	2,917.25
Allied Oil & Gas Co., Laredo	67,818.68	34,466.08
Alpine Oil & Development Co., Alpine	5,615.45	1,587.18
Amicable Life Insurance Co., Waco	366.00	128.10
Abraham, Earl, Bridgetown	643.20	307.80
Alamo Oil Co., Brownwood	379.00	171.86
Ama-Gray Oil Co., Pampa	3,316.96	1,526.93
Arab Gasoline Corp., Eastland	309.59	139.62
Abercrombie, C. L., Archer City	134.50	73.97
Abercrombie, J. S., trustee, Humphreys Corp., Houston	4,893.13	2,718.20
American Refining Properties, Wichita Falls	42,622.75	16,440.53
Artex Oil Co., Wichita Falls	792.87	409.73
Arrow Oil & Gas Co., Fort Worth	194,484.53	33,192.28
Arrow Head Oil Co., Dallas	624.51	313.63
Arkansas Fuel Oil Co., Shreveport, La.	1,719,862.00	315,080.30
American Maracaibo Co., New York, N. Y.	81,336.77	26,675.72
Atlantic Oil Producing Co., Dallas	631,870.06	211,888.18
Arcadia Refining Co., Tyler	40,835.43	21,113.25
Alma Petroleum Corp., Oklahoma City, Okla.	4,892.72	3,327.04
Amerada Petroleum Corp., Tulsa, Okla.	216,913.13	62,695.27
American Refining Properties (WMP), Wichita Falls	3,888.68	1,686.36
Alaska Petroleum Co., Amarillo	836.50	291.62
Adams, Harry Co., Midland	14,200.24	4,281.50
Adams, Dr. W. B., Wichita Falls	329.87	186.63
B		
Brown, H. L., Fort Worth	8,246.85	3,393.31
Beams, Drew, Okmulgee, Okla.	1,507.10	680.12
Beggs, George, Strip, Fort Worth	1,464.38	1,112.99
Big State Oil Corp., Houston	925.99	419.69
Bishop Corp., San Francisco, Calif.	1,980.00	1,346.40
Bolin, D. H., trustee, Graham (6-30-31)	2,423.13	3,101.60
Bolin, D. H., trustee, Graham	8,057.87	4,144.44
Bolin, D. H., trustee, Graham	1,504.29	1,991.85
Bearman, J. A., et al, Cisco (6-30-31)	4,331.32	1,852.47
Bearman, J. A., et al, Cisco	5,090.45	2,138.32
Badgett & Cooper Drilling Co., Longview	35,221.03	12,869.06
Badgett & Cooper Drilling Co., Longview	36,100.32	14,852.51
Benedum-Trees Oil Co., Pittsburgh, Pa.	4,527.02	2,426.10
Bob, W. C., and W. W. Richey, Bruni	1,325.00	680.78
Bass & Dillard, Wichita Falls	1,634.87	750.71
Bernice Oil Co., Saratoga	11,695.10	4,814.00
Bolier, C. W., Wichita Falls	20,488.55	10,167.15
Bourbon Royalty Co., Dallas	4,063.09	1,937.97
Briggs, R. F., Corsicana	73.95	29.58
Buttram Petroleum Corp., Oklahoma City, Okla.	22,443.46	9,155.58
Bailey & Gilliland and Mrs. Fannie Bailey, Wichita Falls	658.74	187.61
Bailey, Carl B., Wichita Falls	6,845.83	3,260.50
Baker, Mollie B., and Fred R., Breckenridge	565.00	296.80
Baker, J. A. and Mollie B., Breckenridge	5,853.00	2,980.53
Baker, J. F. and H. E., Breckenridge	1,167.71	619.00
Bell, E. S., Wichita Falls	76.85	29.08
Big Lake Oil Co., Pittsburgh, Pa.	1,363,389.58	562,650.74
Bill & Dave Oil Corp., Shreveport, La.	59,849.88	19,227.99
Borealis Oil Co., Oklahoma City, Okla.	1,782.12	1,037.63
Bridges, Milton, Kilgore	5,082.00	3,455.76
Buchanan, A. A., San Antonio	24,091.37	13,930.11
Bazzoon, G. A., Holliday	289.12	154.40
Brannon & Murray, Abilene (6-30-31)	623.66	264.30
Brannon & Murray, Abilene	1,522.22	937.59
Baker, J. A., Breckenridge	602.14	244.08
Bartlett Production Co., Rockdale	476.25	204.78
Blackwell Oil & Gas Co., Cushing, Okla.	157,783.27	32,132.22
Bluebonnet Oil Co., Wichita Falls	453.28	228.15
Bynum & Palmer, Rockdale	85.52	35.06
Ball Oil Corp., Henderson (6-30-31)	56,883.43	15,114.95
Barnes, J. B., Electra	7,246.78	3,070.72
Biel, Wm. A., Von Ormy	72.00	36.00
Bohner, Crenshaw & Whitehill, Burkburnett	8,147.59	3,760.20
Borner, C. J., Oil Corp., Burkburnett	13,779.68	6,473.49
Bohner, C. J., et al, Burkburnett	9,793.11	3,968.28
Britton & Gordon, Strawn	487.33	262.97
Butler & McAlister, Olney	279.00	167.00
Bynum, W. W., Etate, Rockdale	620.69	266.88
Bashara, M. J., & Sons, Wichita Falls	982.42	309.64
Biggs Oil & Gas Co., McKinney	655.00	341.88
Borman Oil Co., Rockdale	313.40	128.50
Brown, Mrs. Carrie L., et al, Orange	5,792.51	2,701.15
Brown, Dr. E. W., Estate, Orange	2,235.65	980.82
Baker, James Blair, Jr., and C. F. Camp, trustee, "B" lease, Wichita Falls	11,024.96	4,769.87
Boardman & Ulrich, Corsicana	1,923.00	827.29
Bolin & Lindsay, Graham	7,016.46	4,911.51
Bourbon Royalty Co. and W. G. Lackey Co., Tulsa, Okla.	1,833.80	631.62
Brann, Lee, Glendale, Calif.	363.69	196.87
Brown & Ekholm, Coleman	6,539.47	3,656.81
Barbara Oil Co., Chicago, Ill.	3,019.32	1,426.64
Black, W. A., Midland	544.20	218.00
Blackstock, H. L., Blackstock Oil Co. and J. E. Mabee, Oklahoma City, Okla.	29,453.97	11,079.73
Bohner, C. F., Kansas City, Kans.	103.14	45.47
Bowles, Robert, Oil Co., Longview	77,668.38	17,673.63
Brown Farm Oil Co., Wichita Falls	876.71	487.21
Bryson Oil & Gas Co., San Angelo	12,252.56	6,540.94
Bashara, M. J., & Sons, Wichita Falls	1,101.43	348.99
Bonner, The, Co., Wichita Falls	15,286.55	7,599.96
Booth, C. H., Jr., trustee, M. V. Lawrence "A & B", Taylor	3,319.66	1,285.14
Bridwell & Heydrick, trustee, Wichita Falls	1,366.23	707.92
Bridwell & Mayfield, Wichita Falls	4,189.14	2,237.54
Blackstock, H. L., Oklahoma City, Okla. (6-30-31)	65,556.39	30,891.59
Bridwell Oil Co., Wichita Falls	118,533.76	44,310.52
Baldwin, F. C., et al, Fort Worth	1,185.98	682.13
Bell & Graddy, Inc., Dallas	17,186.34	5,334.91
Burns, L. T., Wichita Falls	31,710.50	10,590.25
Burns, L. T., Wichita Falls	43,751.34	26,630.01
Brazelton Bros. & Williams, Graham	1,554.74	2,282.06
Baker & Pardue, Breckenridge	12,688.71	5,745.83
Baldwin-Sultan Oil Co., Walters, Okla.	5,271.00	364.01
Bradstreet, The, L. G. Co., Fort Worth	16,598.06	10,118.31
Bradstreet, The, L. C. Co., Fort Worth	15,529.63	4,848.08
Brady Bros., Minerva (6-30-31)	640.40	371.39
Brady Bros., Minerva	765.41	327.51
Brazos River Gas Co., Wichita Falls	26,219.47	13,494.76
British American Oil Producing Co., Tulsa, Okla.	152,320.20	58,877.56
British American Oil Producing Co., Tulsa, Okla.	247,441.22	33,556.57
Burkburnett Production Oil Trust, Baltimore, Md.	516.53	243.74
Badger Oil Co., Amarillo	13,067.30	6,154.26
Bexata Oil Co., San Antonio	800.23	352.10
Brown & Lickey, Wichita Falls	604.91	373.46
Bell Oil & Gas Co., Tulsa, Okla.	7,461.09	3,337.60
Bell, The Kate Oil Co., Dallas	524.42	229.31
Black Cat Oil Co., Tyler	774.94	356.42
Braden Co., The, Tulsa, Okla.	3,028.86	1,063.34
Burton Drilling Co., et al, Tyler	99,779.75	32,807.57
Barnsdall Oil Co., Tulsa, Okla.	227,926.04	81,731.81
Baker, Andy J., Zephyr	140.00	59.94
Brownlee-Pope Oil Co., Austin (6-30-31)	.....	911.49
Burk Burnett, Jr., Oil Co., Fort Worth	165.65	71.56
Byrd-Frost, Inc., Dallas	36,597.22	16,906.21
Barnum Oil Co., Borger (6-30-31)	691.00	207.30
Barnsley, Foster Syndicate, Inc., Laredo (6-30-31)	3,016.82	1,812.06
Baker, James Blair, Jr., et al, Wichita Falls	2,233.92	1,046.72
Baker & Camp, trustees "C" lease, Wichita Falls	1,535.76	662.38
C		
Camp Oil & Gas Co., Wichita Falls	229.63	110.62
Capitol Oil Co., Orange	784.86	421.68
Caruthers Co., San Antonio	1,175.68	472.10
Cole, W. C., Wichita Falls	1,118.02	564.92
Cole Petroleum Co., Laredo	6,691.28	3,546.42
Continental Oil Co., Ponca City, Okla.	1,567,612.76	525,762.59
Collins, J. L., & Co., Corsicana	14,229.95	4,222.19
Callihan, George, and Carter Development Co., Albany	1,300.13	785.00
Champlin & Bass, Inc., Holdenville, Okla.	45,020.28	2,966.08
Carlin, W. W., Ranger	496.00	243.04
Columbia Oil & Gas Co., Dallas	111,737.39	29,669.87
Conner Oil Co., Wichita Falls	12,602.83	6,253.38
Craig & Lowrie, Pittsburgh, Pa.	1,020.11	367.22
Carey, E. S., et al (Walterscheid lease), Wichita Falls	.....	.....
Carey, E. S., et al (Koelzer leases), Wichita Falls	490.73	187.54
Carinal Oil Co., San Angelo	48,569.36	7,611.58
Chalk, Otis, Big Spring	3,335.16	909.62
Chalk, Otis, Big Spring	2,092.92	651.18
Clark Buffalo Oil Corp., Buffalo, N. Y.	443.88	205.71
Caltex Oil Co., Somerset	148.56	66.44
Canyon Oil & Gas Co., Inc., Cross Plains	2,795.58	1,396.30
Clark, R. R., Wichita Falls	10,091.69	5,178.30
Corselius Bros. & Taggart, Eastland	2,139.59	1,148.46
Corselius Bros. & Taggart, Eastland (6-30-31)	1,065.42	517.42
Corvette Oil Corp., Fort Worth	9,929.59	2,344.42
Cox, Edwin B., Ardmore, Okla.	1,118.98	485.08
C. R. & M. Drilling Co., San Antonio	16,990.85	9,809.11
Culbertson Bros. Co., Fort Worth	26,811.29	4,365.23
Clark, R. R., et al, Wichita Falls	22,614.80	11,405.00
Cranfill-Reynolds Co., Houston	339,327.39	170,694.29
Clayton Key Oil & Gas Co., Amarillo	3,392.16	1,441.78
Cisco Oil Co., Tulsa, Okla.	14,634.42	6,305.68
Clem Oil Co., Houston	315.23	147.52
Crosbie, J. E., Inc., Tulsa, Okla.	1,204.40	344.68
Connell-Wixson-Frazier, Eldorado, Kans.	785.68	255.07
Culbertson Co., Wichita Falls	6,579.33	3,454.14
Cable Oil Co., Wichita Falls	5,981.64	3,651.36
California Co., Dallas	1,237,397.00	345,217.62
Claggett & Evans, Mirando City	1,369.54	710.37
Coffield & Hale Oil Co., Rockdale	1,134.91	427.50
Como Oil Corp., Henderson	12,335.47	5,396.97
C. P. Oil Co., Henderson (6-30-31)	118,608.37	27,668.60
Central Oil Co., Cameron (6-30-31)	2,350.62	1,006.82
Clear Lake Oil Co., Rockdale	614.72	256.37
Condor Petroleum Co., Sweetwater	11,765.37	5,447.23
Conway Bros., Ranger	3,197.63	1,524.30
Croft & Connor, Inc., Fort Worth	4,475.50	2,449.35
Centennial Oil & Gas Co., Dallas	30,999.00	14,038.95
Cushing Refining & Gasoline Co., Cushing, Okla.	3,025.37	837.11
Charlesworth-Messinger Oil Co., McCamey	3,014.70	664.74
Clarkson, William, trustee, Houston	4,603.71	2,265.20
Cranfill Brothers Oil Co., Wichita Falls (6-30-31)	3,779.61	2,000.73
Cranfill Brothers Oil Co., Wichita Falls	2,307.65	298.50
Cady, C. C., Moran	229.98	107.00
Christie Brothers, Wichita Falls	24,568.39	13,484.96
Clark & Cowden Drilling Corp. and Louis Sikes, Duncan, Okla.	22,468.08	6,603.18
Crabb & McNeel, San Angelo	1,444.51	725.18
Cullen, H. R., et al, Houston	4,521.29	2,211.50
Cullen & West Production Co., Houston	224,792.72	102,228.69
Cuno, Mrs. Bertha, Moran	1,364.28	655.21
Campbell, Alma, Fort Worth	329.87	179.07
Cullen Oil Co., Henderson (6-30-31)	14,234.65	3,387.88
Conservative Oil Co., Tyler (6-30-31)	8,306.34	2,031.04
Castlebury, S. A., Vernon (6-30-31)	210.55	78.28
Clark, A. R., Kansas City, Mo. (6-30-31)	117.46	58.91
Church & Weekley, Fort Worth	26,798.53	7,416.92
Coline Oil Corp., Oklahoma City, Okla.	2,054.89	986.89
Cooper & Mishler, Wichita Falls	3,142.26	1,304.67
Cooper, G. W., et al, Wichita Falls	1,043.49	624.83
Coaden, J. S., Inc., Fort Worth	5,247.99	2,230.95
Cisco Oil Co., Tulsa, Okla.	6,204.48	2,773.04
Concord Oil Co., Dallas	35,580.96	5,178.96
Crown Central Petroleum Corp., Houston	33,283.29	9,747.19
Crown Oil & Refining Co., Houston	10,736.66	4,870.54
Conservative Oil Co., Tyler	52,672.75	17,093.04
Cordova-Union Oil Corp., Fort Worth	88,237.73	36,778.16
C. & C. Fuel Oil Co., Lockhart	4,049.00	1,619.60
Clark, C. W., Wichita Falls	3,704.04	1,822.08
Cohen, Aaron, Baltimore, Md.	4,400.48	2,119.52
C. P. Oil Co., Henderson	250,693.23	60,704.46
Cullum, F. P., Wichita Falls	15,488.29	8,150.03
Curtis, James A., Wichita Falls (6-30-31)	1,016.29	436.49
Curtis, James A., Wichita Falls (6-30-31)	861.72	449.39
City National Bank, Wichita Falls	10,118.27	5,797.44
Cornhusker Oil Co., Lincoln, Neb. (6-30-31)	1,412.27	809.95
Cornhusker Oil Co., Lincoln, Neb.	1,028.54	579.79
Carey, C. W., Wichita Falls	4,509.73	2,236.82
Ceseaux, P. C., Humble	5,276.80	2,397.18
Chenault, W. L., Amarillo	267.25	149.89
Cherokee Chief Oil Co., Gladewater	94,420.72	18,670.06
Comet Petroleum Co., Fort Worth	1,752.05	519.39
Canary, S. C., et al, Tulsa, Okla.	364.95	140.18
Clay, J. D., Houston	3,062.11	1,497.98
Coppock & Coleman, Iowa Park	9,123.00	4,470.60
Castlebury, S. A., Vernon (6-30-31)	189.38	68.42
Champlin Refining Co., Enid, Okla.	85,354.84	22,363.72
Champlin Refining Co., Enid, Okla.	50,442.36	25,950.52

(Continued on next page)

TEXAS GROSS PRODUCTION, THIRD QUARTER, 1931

Name and address—	Barrels	Value
D		
Deep Oil Development Co., Wichita Falls	38,193.83	20,155.07
Duquesne Oil Corp., Eastland	404.40	168.43
Davis, Roy, Tyler	4,405.42	2,995.69
Devonian Oil Co., Tulsa, Okla.	453,475.25	134,224.89
Duffield & Howard Oil Co., Tulsa, Okla.	443.39	184.50
Deako Oil Co., San Antonio	3,241.06	1,956.15
Dale, Jack B., Wichita Falls	2,499.89	1,270.35
Droppleman Drilling Co., co-partnership, Wewoka, Okla. (6-30-31)	850.00	127.50
Dale Oil & Refining Co., Wichita Falls	10,498.38	4,954.59
Douglas Production Co., Electra	2,953.90	1,480.63
Douglas Brothers & Johns, Electra	584.72	300.19
Douglas Brothers Oil Co., Electra	1,288.59	704.13
Deep Rock Oil Corp., Tulsa, Okla.	32,304.23	10,077.54
Deep Rock Oil Corp., Tulsa, Okla.	62,207.72	22,261.99
Derby Oil Co., Wichita, Kans.	2,151.98	981.55
Derby and Haines, Wichita, Kans.	3,646.14	1,372.85
Derby-Haines-Williams, Wichita, Kans.	334.31	295.29
Derby Oil Co., Wichita, Kans.	6,637.16	3,136.18
Dixon Creek Oil & Refining Co., Amarillo	199,007.00	71,544.03
Dunigan Brothers, Breckenridge	724.41	347.36
DeArman Brothers, Kilgore	17,025.34	5,905.88
Dale-Knotts Oil Co., Wichita Falls	287.01	147.44
Davis Oil Corp., Vernon	36,862.41	18,286.46
Da-Mac Oil Corp., San Antonio	17,504.37	10,165.60
Detroit Texas Development Co., Luling	1,263.00	378.90
Dimham Oil Corp., Shreveport, La.	20,582.63	5,615.11
Darby Petroleum Corp., Tulsa, Okla.	25,878.95	14,403.16
Deering, John A., Houston	23,332.33	12,294.04
DenWich Oil Co., Abilene	247.38	141.95
Dennis, J. S., Moran	1,796.86	803.33
Duho Oil Co., Houston	1,216.20	576.54
Dunning, Wm. H., Jr., Fort Worth	17,434.80	5,703.40
D. & L. Production Co., Houston	39,682.68	24,979.13
Daniel Drilling Co., Wichita Falls	2,769.72	1,409.01
Dunaway, J. E., et al, Wichita Falls (6-30-31)	1,662.44	649.40
Dunaway, J. E., et al, Wichita Falls	1,480.86	765.07
Duval Oil Corp., San Antonio	73,022.27	39,436.07
Davis, Beatrice H., and Louise Reyman, Tulsa, Okla.	5.03	1.75
Driscoll, R., estate, Corpus Christi	16,264.32	8,354.49
Dale & Crawford, Electra	403.03	196.16
Deako Oil Co., San Antonio (8-15-31)	1,650.13	651.76
Developers Oil & Gas Co., Wichita Falls (6-30-31)	478.00	240.67
Developers Oil & Gas Co., Wichita Falls	341.00	181.06
Donley & Chastain, Tyler	5,093.49	861.29
Danciger Oil & Refining Co. of Texas, Fort Worth	566,923.18	177,869.37
Derosa Oil & Gas Co., Amarillo	13,305.99	5,937.55
Dean Oil Co., Burkburnett	127.71	70.24
Dalton, Jack Oil Co., Mineral Wells (6-30-31)	905.76	445.17
E		
Eddingston, Mrs. Erina, executrix of estate A. T. Eddingston, deceased, Fort Worth	300.00	120.00
Eddingston, Mrs. Erina, Ind. executrix of estate A. T. Eddingston, deceased, Fort Worth (6-30-31)	360.00	108.00
Emerald Oil Co. of Texas, Winfield, Kans.	9,293.13	3,756.94
Elliott, Harry W., Fort Worth	313,246.39	77,003.83
El Rio Oil Co., Amarillo	324.61	112.74
East Texas Refining Co., Dallas	851,058.42	228,290.13
Eddleman & Payne, Inc., Wichita Falls	3,251.77	1,868.67
Ellis & Anderson, San Antonio	46.86	21.48
Erie Investments, Ltd., of Texas, Toronto, Canada	383.05	157.05
Edmondson, J. M., San Antonio (6-30-31)	1,105.11	453.90
Elliott, Harry W., Fort Worth (6-30-31)	343,118.86	61,862.99
Engel, E. A., Albany	2,742.00	1,305.66
East Batson Oil Co., Batson	10,674.60	5,142.10
Eppenauer, E. L., Tr., St. Louis, Mo. (6-30-31)	1,013.23	491.15
Earle, E. S., et al, Fort Worth	1,977.00	1,344.36
Easton, E. S., Wichita Falls	774.01	402.75
Edmondson, J. M., San Antonio	796.79	329.71
Ernest Oil Co., Rockdale	96.86	39.71
Etex Oil Co., Dallas	15,721.07	5,585.49
Electra Production Co., Inc., Electra	667.03	428.60
Eppenauer, E. L., Tr., St. Louis, Mo.	303.14	140.56
Edson Petroleum Co., Houston	13,334.49	4,957.44
Ellis & DuBose, Fort Worth	1,390.20	585.35
Eddy Oil Co., Beaumont	768.27	402.02
Eastland Oil Co., Fort Worth	33,266.01	11,717.47
Estes, Joe B., Tyler	14,335.08	5,180.16
Estes, Joe B., Tyler	12,910.70	4,824.06
Eckert & Son, San Antonio	6,727.02	3,435.64
Eckert, F. H., San Antonio	857.83	426.96
Empire Gas & Fuel Co. (Maine), Bartlesville, Okla.	185,182.04	50,836.83
Empire Gas & Fuel Co. (Maine), Bartlesville, Okla.	245,452.07	133,776.58
F		
Federated Oil Co., Wichita Falls	63,236.34	25,074.63
Franklin, E. J., Kansas City, Mo.	616.72	364.84
Fultz, W. B., et al, J. J. Scott farm, Graham	2,937.85	1,565.70
Foster & Jeffries, Dallas	13,682.03	7,873.23
Four Oil Co., Wichita Falls	1,189.46	630.37
Farlyn Oil Co., Houston	8,274.62	2,218.24
Freeman Hampton Oil Corp., Wichita Falls	4,861.43	2,282.45
Fulton, Tom, Wichita Falls	628.94	398.94
Foster & Jeffries, Dallas (6-30-31)	9,781.10	3,221.22
Frasher & Breeding, San Antonio (7-1 to 7-15)	5,919.37	2,604.52
Farish & Ireland lease, Houston	5,699.98	2,592.99
Fleetborn Oil Corp. and Steinberger & Schwab, Ada, Okla.	46,115.76	11,828.47
First National Bank, Wichita Falls	2,271.40	1,106.00
Fisher, J. A., Wichita Falls	897.43	427.75
Flannery & Bradley, Gladewater	37,636.76	8,943.25
Fox & Butler, Dallas	31,630.08	14,206.33
Fox, Perry I., and Wm. R. Thorsen, Mertzon	320.35	203.41
Fullerton, W. R., Wichita Falls	650.91	372.62
Flynn, W. B., Inc., Beaumont	5,908.64	3,042.65
Franklin, Wirt, Ardmore, Okla.	203.59	98.08
Fresno Oil Co., Burkburnett	26,214.32	12,440.45
Flanagan Production Co., Inc., Longview	74,063.47	9,940.88
French Oil Corp., San Antonio	14,215.34	7,249.69
Fairway Production Co., Laredo	11,055.60	5,580.82
Falls Production Co., Wichita Falls	5,994.76	3,051.53
F. H. E. Oil Co., Fort Worth	124,306.92	50,557.00
Ferguson, W. R., Wichita Falls	481.57	231.67
Finston, Mark, Special Account, Tulsa, Okla.	8,440.75	4,000.06
Fleming & Kimbell, a partnership, Fort Worth	3,035.12	1,095.17
Floyd, K. J., Glendale, Calif.	142.82	74.14
Farmers State Bank, Burkburnett	810.40	373.97
G		
Gardner, Wilson & McCaldin, Wichita Falls	814.29	387.47
G-I Oil Co., Wichita Falls	6,330.20	2,804.66
Gwynn-Boyd Drilling Co., Wichita Falls	1,366.38	685.66
Gwynn, P. F., individual and as agent for J. F. Boyd, Tom Corridon and J. D. Oberbey, Wichita Falls	877.58	449.74
Golding & Cochran, Dallas	26,915.69	13,267.70
Golding, Dudley S., Dallas	13,215.82	4,601.55
Golding-Murchison Oil Co., Dallas	1,078,474.54	209,039.25
Glenridge Oil Corp., St. Louis, Mo.	2,720.97	1,104.32
Gibson & Johnson (Inc.) and John F. Merrick, Fort Worth	11,051.60	5,503.42
Glasscock Bros., Longview	3,419.08	683.96
Grayback Development Corp., Wichita Falls	5,428.16	2,429.05
Grayburg Oil Co., San Antonio	126,032.89	37,637.84
Group No. 1 Oil Corp., Fort Worth	944,356.76	408,950.92
Goodwin, P. B., trustee, Breckenridge	2,252.35	569.23
Goodwin, P. B., et al, Breckenridge	282.00	146.62
Gordon Oil Co. of Texas, Logan, Ohio	77.43	27.10
Gilman & Conway Bros., Ranger	3,704.95	1,817.12
Golden West Oil Co., San Antonio	13,077.46	4,992.87
Gunn Production Co., Cross Plains	218.27	135.91
Geyer, Adolph A., and R. G. Storey, Dallas	13,889.67	2,030.97
Gillman Bros., Amarillo	425.39	174.29
G. & R. Oil Co., San Antonio	14,291.28	5,112.62
Gholson, John M., Ranger	1,423.38	672.34
Gates Oil Co., Ardmore, Okla.	2,142.78	1,036.97
Gilcrease Oil Co., Tulsa, Okla.	24,655.59	13,777.52
Gorsuch Oil Co., Abilene	2,231.22	1,100.49
Grady, Mary E. (formerly Wm. Bartlett & Co.), Electra	352.61	195.41
Grady, D., Electra	266.83	179.17
Grady, Mary E. (T. W. Roberts), Electra	240.59	141.41
Gulf Production Co., Houston	3,865,063.00	859,250.30
Gulf Production Co., Houston	3,536,468.00	1,605,026.90
Gilman, R. F. and J. L. McMurray, Cisco	7,040.38	3,496.63
Graham, Cree & Hoover, Amarillo	4,871.19	2,313.63
Graham & Harrison, South Bend (6-30-31)	4,247.42	2,173.68
Graham & Harrison, South Bend	3,626.02	1,786.73
Galvez Oil Corp., Tulsa, Okla.	15,031.49	8,874.06
G. & K. Production Co., Fredericksburg	749.56	315.52
Gatlin Oil Co., San Antonio	4,799.98	2,362.23
Granite Oil & Gas Co., Ridgway, Colo.	308.78	168.49
Grisham-Hunter Corp., Abilene	32,929.38	11,473.76
Guthrie Cole & Ferguson, Wichita Falls	347.58	163.50
Ginter Jones Oil Co., Nacogdoches	400.03	171.94
Ginter Lange Oil Co., Nacogdoches	1,360.91	600.48
Grassroots Oil Co., Fort Worth	1,119.74	612.42
Gladis Oil Co., Saratoga	2,325.82	1,097.02
Gaither Production Co., Rockdale	488.77	164.07
Gallagher & Lawson, Cisco	257.34	70.30
Gordon, Ann B. Oil Oil Co., Inc., Dallas	1,517.62	760.18
Gates-Laron-Lea, Wichita Falls	3,382.37	1,718.41
Glass Bros., Rosebud	553.50	238.00
Guthrie Cole & Ferguson, Wichita Falls (6-30-31)	390.19	126.27
Gilbert Co., Beaumont	583.81	161.36
Graham, Cree & Hoover, Amarillo (Feb. to June, inc.)	8,372.52	2,986.81
Green & Owen, Brownwood	2,360.70	1,187.69
Gulf Coast Oil Co., Houston	97,784.87	39,726.87
H		
Humble Oil & Refining Co., Houston	8,743,025.73	3,522,515.41
Helvetia Oil Co., San Antonio	7,363.74	4,152.92
Harrell, J. T., Wichita Falls	371.02	200.28
Holbrook & Woods, Wichita Falls	4,947.78	2,269.67
Harwell, E. P., Tulsa, Okla.	986.26	433.45
Holder, F. W. and J. B. Gordon, Breckenridge	285.11	122.23
Hull, L. V., Wichita Falls	5,032.43	2,695.60
Howard Petroleum Corp., Tulsa, Okla.	29,200.49	11,888.31
Hammond & Waggoner, Wichita Falls	791.74	422.24
Heydrick, L. C., Wichita Falls	9,756.44	2,432.32
Hickey, T. J. et al, Corsicana	89.58	45.54
Holmes Bros.-Moore lease, Amarillo	5,188.28	1,915.13
Holmes, Hill, Seibold & Holmes, Moore lease, Amarillo	24,621.15	8,830.80
Holmes-Newblock lease, Amarillo	5,456.59	2,035.57
Holmes Bros.-Quinn lease, Amarillo	28,152.54	10,322.45
Horn, T. W., Houston	81.52	32.61
Humphreys Corp., Houston	424,955.72	191,402.87
Hutchinson Drilling Co., Borger (6-30-31)	497.37	159.60
Hedges, F. M., Wichita Falls	134.08	74.77
Hawley, J. A., guardian of the estates of Kevin Hawley, minor, Ottawa, Ontario, Canada	146.78	68.89
Hamill-Smith Oil Corp., Houston	14,944.24	7,684.50
Houston Production Co., Houston	75,097.51	32,347.86
Hopkins, Edwin B., Longview	17,440.11	6,465.03
Hamilton, Walter R., trustee, San Antonio	3,436.01	1,620.31
Herrogan Oil Corp., Pampa	10,544.51	3,237.95
Hobson & Voorhees, San Antonio	496.22	226.17
Hope Oil & Gas Co., Fort Worth	10,052.34	3,560.19
Hamon, Jake L., Ardmore, Okla.	15,246.09	7,460.53
Heep Oil Corp., Houston	143,786.88	47,867.38
Hickok Producing & Development Co., Toledo, Ohio	154.68	70.24
Hickory Oil & Gas Corp., Fort Worth	2,868.45	1,344.80
Hill & Dowell, Batson	6,027.23	2,734.05
Hughes, J. K., Oil Co., Mexia	1,063,254.00	4,743.02
Hyer, Fred, Fort Worth	21,855.88	6,325.43
Hedrick-Camp Drilling Co., Wichita Falls	2,201.34	939.87
Humphreys Bros., Inc., et al, Denver, Colo.	396.38	190.21
Heyser & Heard, Dallas	56,657.85	18,994.72
Howard, Duffield & Berlin, Peoria, Ill.	700.08	294.11
Hamilton & Martin, Wichita Falls	330.20	140.71
Harrison Oil Co., Houston	40,841.57	23,134.41
Herring, S. C., Brownwood	643.00	319.90
Hanlon Gasoline Co., Tulsa, Okla.	1,735.24	803.94
Harper Petroleum Corp., Bryson	15,487.20	8,199.37
Hayes, Reese L., Wichita Falls	1,167.55	616.77
Hawkeye Petroleum Corp., Longview	58,824.50	23,204.23
Haynes Drilling Co., Inc., Shreveport, La.	104,196.07	34,985.16
Hemby, J. M., Electra	737.71	403.38
Herbert Oil Co. of Texas, Fort Worth	4,846.06	2,400.22
Hefley, McIntosh & Thomas, Cameron	469.66	183.16
Hobbs, Ferguson & Neeley, Addison H. Gibson, Leroy Adams, Tulsa, Okla.	865.35	374.35
Hoppes, W. T., Burkburnett	440.00	254.90
Hoppes, W. T., Burkburnett	100.00	21.28
Huber, J. M., Petroleum Co., Borger	21,149.07	7,190.68
H-Y Oil Co., Inc., Fort Worth	10,758.82	5,732.95
Haskell, Frank, Tulsa, Okla.	1,044.38	479.15
Hobbs Oil Co., Tulsa, Okla.	460.23	269.94
Hardy Oil Co., Wichita Falls	1,484.98	732.39
Hawkins, W. L., Wichita Falls	2,044.42	848.13
Hoffman & Page Co., Eastland	11,218.62	5,249.47
Holcombe, Thomas, Wichita Falls	1,550.26	846.37
Hoffman, P. L., Cisco	40,200.79	7,333.88
H. & H. Drilling Co., Seminole, Okla. (6-30-31)	60.00	24.60
H. & H. Drilling Co., Seminole, Okla.	254.75	114.90
H. & H. Drilling Co. and J. L. Douglas, Albany, Tex., and Seminole, Okla.	776.00	293.27
Hunter Oil Corp., Chicago, Ill.	30,482.76	14,317.70
Hastings, Allen & Craft, et al, Overton	9,737.00	2,620.60
Heidrich, E. C., Jr., Amarillo	2,207.26	668.16
Home Oil & Gas Co., Inc., Albany	897.30	386.98
Hyde & James, Albany	419.72	221.81
Holloway, R. R., receiver, Brownwood (6-30-31)	802.53	362.87
Hardie, J. M., & Co., Sour Lake	148.17	59.27
Houston Gulf Gas Co., Houston	5,623.05	2,833.25
Howard County Oil Corp., Longview	10,122.00	3,038.53
H. B. J. Oil & Gas Trust, Baltimore, Md.	1,303.12	651.60
Hammon & Heyser, Wichita Falls	6,582.82	3,159.47
Hammon, W. H., Wichita Falls	13,653.24	14,757.88
Hays, F. C., trustee, Tulsa, Okla.	1,340.40	627.75
Hindman, G. W., and S. G. Ward, Henderson	56,979.79	17,454.94
Hines, Harry, Wichita Falls	2,705.43	1,314.05
Huey, Ora, Borger	3,913.25	1,371.63
Houston Oil Co. of Texas, et al, Houston	1,024,586.87	396,452.54
Halliday, H. J., Beaumont (6-30-31)	873.37	553.58
Hunter, T. F., Wichita Falls	16,033.18	6,466.01
Hinson, G. D. and R. V. Tidwell, Graham	4,434.61	2,088.33
Hamilton, W. L., Bridgetown	572.03	330.02
Hamill & Hamill, Bay City	31,058.16	14,803.98
Hitchman & Howard, Inc., San Antonio	1,815.05	788.09
I		
Iowa-Payne Oil Co., Marshall	17,328.03	11,155.47
Imperial Petroleum Co., Dallas	11,609.28	4,107.30
Infield Petroleum Co., Austin	425.00	in storage
Indian Territory Illuminating Oil Co., Bartlesville, Okla.	41,846.80	16,595.80
Irick Oil Co., Waskom	297.53	146.60

(Continued on next page)

TEXAS GROSS PRODUCTION, THIRD QUARTER, 1931

Name and address—	Barrels	Value
J		
Jackson, Wise & Snedden, Sapulpa, Okla.	48,228.22	16,597.02
Johnson, F. T., Wichita Falls	206.56	140.46
Jones, Hugh, Burkburnett	2,869.00	1,074.78
Jones, J. E., Wichita Falls	2,136.03	654.15
Jones, Edwin M., San Antonio	295,567.84	130,424.51
Jackson, T. H., Sipe Springs	67.64	34.65
Jones-O'Brien, Inc., Shreveport, La.	26,775.50	8,214.81
Jones, E. W., and F. D. Drilling Co., Dallas	36,045.21	3,429.20
Jones Dome Oil Co., Oklahoma City, Okla.	15,362.85	5,740.85
Jones, J. A., Moran	79.37	52.38
Jacob Oil & Gas Co., Graham	3,383.91	1,703.15
Johnston, Wyche & Harbrough, Kilgore	7,020.41	2,367.47
Judson Oil Co., Tulsa, Okla.	2,010.29	1,164.76
Jamison, Pollard & Forster, Coleman	4,684.55	2,427.16
Jonray Oil Co., Somerset	611.67	283.29
Jenkins Oil Corp. and Hamilton Petroleum Co., Dallas	116,993.40	52,647.03
Julia Oil Co., Sour Lake	3,139.82	1,436.40
Jones, R. C., Cushing, Okla.	36,045.15	13,756.78
Justin Oil Corp., et al, Woodhaven, N. Y.	4,042.20	1,928.45
Johnson Bros., San Antonio	4,194.53	1,881.96
Jones, O. P., and C. J. Oates, Amarillo	1,335.00	333.75
Janellen Oil Co., Tulsa, Okla.	122.08	43.00
K		
Kimmell, W. O., Wichita Falls	774.92	513.12
Kleiner, Charles J., Cisco	27,852.25	13,235.44
Kolp, C. F., Tyler	19,117.35	9,011.35
Kolp, C. F., et al, Tyler	32,385.78	9,174.90
Kay, A. W., receiver, Jones, et al, J. E. Keen, et al, Graham	57.30	23.40
Kay, A. W., and W. B. Fultz, J. Kisinger farm, Graham	6,844.54	3,633.35
Kemrow Co. and Bailey, Wooster, Ohio	9,606.64	4,556.94
Keener Oil & Gas Co. of Texas, Tulsa, Okla.	2,563.08	1,183.45
Kohlman, Richard, Iowa Park	299.00	161.09
Kimbell, G. T., and John L. Bostic, Burkburnett (6-30-31)	3,900.61	2,301.36
Kidney & Lester, Fort Worth	7,827.00	4,008.58
Kendrick, P. S., Albany	1,495.05	728.41
Kirby Petroleum Co., Houston	212,252.30	68,580.05
K. & P. Oil Co., Tyler	72,893.43	18,709.84
Kaufman, L., San Antonio	172.96	71.74
Kewanee Oil & Gas Co., The, Titusville, Pa.	130,212.83	59,024.75
Kiser & Fleming, Albany	2,109.62	1,012.65
Kahle, Gracey & Dives, Dallas	1,255.50	554.84
Karona Oil Co., Dallas	114,323.57	33,586.87
Kent, G. C., Corsicana	12,309.73	5,246.14
Keystone Production Co. of Texas, Fort Worth	2,381.90	1,211.24
King & Massingill, Longview	15,700.00	6,042.72
Kelly, George L., trustee, Wichita Falls (6-30-31)	396.44	199.83
Kelly, George L., trustee, Wichita Falls	264.22	139.40
King & Daniel, Wichita Falls	3,675.47	1,866.41
Klemcke, George, trustee, Von Ormy	1,251.66	517.67
Kurs Oil Co., Somerset	407.22	168.33
Knox, D. M., Graham	19,246.77	11,071.71
Kokomo Petroleum Co., Gorman	.....	.....
K. & P. Oil Co., Tyler	73,279.99	12,238.72
Kleiner, John H., Cisco	1,962.50	1,003.16
Kepley Production Co., Laredo	24,566.76	14,688.44
Kimbell, G. T., and John L. Bostic, Burkburnett	4,418.34	2,076.62
Koenig, Max W., Oakland, Calif.	13,843.88	3,798.57
Kuhlemeier-Kleiner Oil Co., Cisco	615.30	314.31
Kavanaugh Petroleum Co., Houston	3,241.86	1,616.10
Kerr, T. P., Corsicana	541.81	266.41
Kleinfelder, B. F., Breckenridge	209.52	123.20
Kurz, A. A., Somerset	209.45	96.60
Killam, O. W., Laredo	178,655.48	90,632.55
Kisk Oil Co., Wichita Falls	610.26	285.42
Kolp, C. F., et al, Tyler	27,690.15	7,598.50
Kathleen Oil Co., McAlester, Okla.	17,818.00	9,226.14
Kingwood Oil Co., Okmulgee, Okla.	29,741.16	9,917.99
King Royalty Co., Wichita Falls	160,393.97	84,180.25
Kimmell & Woofter, Wichita Falls	4,611.37	2,374.58
Kimmell & Woofter, Wichita Falls (6-30-31)	3,794.98	1,630.04
K. & M. Oil Co., San Antonio	18,884.99	6,458.02
King, R. A., trustee, Wichita Falls	1,740.66	906.61
L		
Letwin & Lippitt, Breckenridge	17,848.00	9,080.19
Lewis Production Co., Pittsburgh, Pa.	78,899.79	29,394.66
Long, L. A., et al, Graham	17,243.98	10,822.44
Linedo Oil Co., Lincoln, Neb. (6-30-31)	548.90	305.53
Linedo Oil Co., Lincoln, Neb.	488.72	233.23
Little Flower Oil Co., St. Louis, Mo.	243.02	121.91
Lake View Oil Co., Sour Lake	8,330.50	3,925.94
Leonard Petroleum Co., Washington, Pa.	5,664.64	849.69
Leonard Petroleum Co., Washington, Pa.	22,596.28	13,810.14
Lloyd Oil Corp., Fort Worth	14,141.80	4,949.63
Lone Star Gas Co., Dallas	30,847.81	10,120.27
Long, C. B., et al, Wichita Falls	1,016.48	591.84
Lee, Homer, Wichita Falls	8,258.60	4,359.60
Leiser-Rochmill Production Co., Inc., Fort Worth	1,120.14	398.67
Lone Star Gasoline Co., Dallas	7,443.00	3,636.54
Lampton, H. W., Muskogee, Okla. (6-30-31)	26,212.07	8,635.12
Loggie & Arendt Oil Co., Albany	1,211.02	570.05
Little, Wm., Breckenridge	157.70	91.46
Long, Roy Oil Co., Navasota	1,279.74	546.58
Landreth Production Corp., Fort Worth	127,716.73	34,552.26
Lockhart & Co., Los Angeles, Calif.	47,371.01	15,142.88
Lido Oil Co. and McGinley Corp., Wichita Falls and Fort Worth	14,632.41	5,075.62
Lewis, J. E., & Co., Eastland	1,075.78	507.79
Lewis, J. E., et al, Eastland (6-30-31)	750.78	386.60
Lacy Petroleum Co., Inc., Longview	22,247.82	7,284.05
Lee & Scott, Inc., Houston	2,245.75	969.35
Lee & Wilson, Houston	2,063.96	944.46
Lide-Taylor Oil Co., Inc., Shreveport, La.	85,660.48	29,660.45
Lide-Rowe Oil Co., Inc., Shreveport, La.	96,801.99	28,711.46
Lampton, H. W., Muskogee, Okla.	17,522.21	6,062.97
Leonard, George, Somerset	1,020.49	454.90
Leonard & Patillo, Somerset	90.44	39.26
Lawson, estate of Eugene B., deceased, Tulsa, Okla.	19,523.49	11,157.09
Lester & Duffield, Fort Worth	1,353.00	920.00
Lobow, C. H., Tulsa, Okla.	1,174.92	588.98
Lefora Petroleum Co., Inc., Lefors	17,245.53	5,790.33
Little Flower Oil Co., St. Louis, Mo. (6-30-31)	340.40	132.30
Lockhart & Co., Los Angeles, Calif.	47,371.01	15,142.88
Livingston & Wellman, Fort Worth	25.76	18.43
Lytle, C. F., Mexia	4,177.30	1,779.72
Layne, L. A., Houston	33,578.52	11,819.58
Leck Royalty & Oil Co., Fort Worth	1,177.96	750.89
Lucey Petroleum Co., Dallas	68,651.15	26,248.44
Lesh, John I. & Co., Nocona (6-30-31)	3,909.67	997.59
Lesh, John L. & Co., Nocona	5,147.82	1,867.64
Lesh, P. F., trustee, Zenith Oil Prod. Co., Nocona	11,306.80	6,165.91
Lesh, Kilcrease & Co., Nocona	1,647.12	517.32
Lesh & McCall, Nocona	34,398.44	11,190.64
Lowe, Delaney & Carter, DeLeon	1,705.22	759.39
Louisiana Oil Refining Corp., Shreveport, La.	133,715.73	44,647.90
Lion Oil Refining Co., El Dorado, Ark.	649,201.21	176,971.26
Mc		
McBride, W. C., Inc., St. Louis, Mo.	5,569.26	2,478.71
McDonald & Campbell, Dallas	2,910.44	1,436.88
McLester Oil Co., Eastland	10,862.52	5,479.88
McCutchen, C. E., trustee, Wichita Falls	3,862.81	2,138.57
McDonald Brothers, Mount Pleasant	72,017.21	10,977.16
McMahon, Charles L., Tulsa, Okla.	130,618.35	19,265.65
McGinley Corp., The, Fort Worth	3,658.10	1,691.87
McCarter, R. C., Rising Star	659.66	357.66
McCulloch Oil Co. of Texas, Tyler	141,772.79	38,765.72
McCulloch Oil Co. of Texas, Tyler	14,031.95	1,122.57
McCauley, Claud, Somerset	548.08	321.87
McDaniel Oil Corp., Cisco	3,770.97	1,910.14
McMurray, Root & Rhodes, Eastland	585.90	298.00
McNallen & Griffin, Tulsa, Okla.	2,152.85	1,221.35
McClintock, J. G., Amarillo	4,928.17	1,533.44
McCurdy, E. J., trustee, Fort Worth	8,447.07	2,280.74
McDaniels & Plummer, Houston	11,367.48	4,459.54
McNamara Oil Co., Beaumont	2,214.43	1,013.62
Macknold Co., San Antonio	149.90	64.61
McCarty Oil Co., Wichita Falls	50,545.32	25,848.41
McIlroy Oil Co., Amarillo	23,424.32	9,258.32
MacDermott, W. F., Fort Worth	715.01	324.83
McKanna, Inc., Wichita Falls	8,545.48	4,073.11
McMurray, J. L., et al, Cisco	1,704.28	861.17
McAlbert Oil Co., Inc., Houston	49,246.12	24,161.06
McDaniel, D. B., Houston	97,812.56	44,437.82
McFall, J. M., Wichita Falls	443.90	236.35
M		
Madden, E. B., Olney	8,736.15	4,404.15
Madden & Hunt, Olney	7,579.81	3,815.52
Massie, H. J., Wichita Falls	28,918.40	15,089.09
Moran Co., The, Wichita Falls	7,322.59	3,656.41
Moss, H. S., Dallas	15,359.48	5,802.24
Moss, H. S., special, Dallas	73,473.16	36,432.16
Moutray Oil Co., Abilene	4,394.33	2,004.15
Margay Oil Corp., Tulsa, Okla.	19,488.84	10,722.02
Mayberry, C. R., Co., Laredo	1,884.77	970.42
Menke, John G., Wichita Falls	402.82	210.94
Milham Corp. of Texas, Fort Worth	1,361.82	647.31
Marine Corp., Dallas	445,431.47	74,517.30
Mid-Texas Petroleum Co., Oklahoma City, Okla.	12,736.58	6,167.64
Millikin, L. L., Burkburnett	239.95	119.09
Moss & Urschel, Dallas	28,795.14	9,679.85
Moss, Urschel & Keys, Dallas	1,000.35	482.68
Mount & Lee, Inc., Wichita Falls	1,207.49	560.39
M. & V. Oil Co., Wichita Falls	2,987.39	1,442.72
Merrick & Belcher, Wichita Falls	6,346.38	3,175.37
Merrick & Goldsmith, Wichita Falls	3,431.97	1,804.40
Merrick, John F., Wichita Falls	104,351.96	16,972.62
Mills Bennett Production Co., Houston	353,031.24	153,286.11
Moore, George N., and Henry Zweifel, receivers, Cosden Oil Co., Fort Worth	106,300.12	44,465.12
Moore, George N., and Henry Zweifel, receivers, Cosden Oil Co., Fort Worth	96,308.82	34,262.96
Marts, E. R., Dallas	3,838.76	1,998.87
Mid-Kansas Oil & Gas Co., Findlay, Ohio	1,630,532.15	305,201.44
Mid-Kansas Oil & Gas Co., Findlay, Ohio	1,769,878.96	601,389.94
Massey-Black, McCamey	556.74	197.02
Minntex Oil Corp., Wichita Falls	673.26	328.67
Mudge Oil Co. of Texas, Pittsburgh, Pa.	77,108.12	25,233.43
Mid-Continent Petroleum Corp., Tulsa, Okla.	13,936.22	6,231.14
Mitchell, Frank A., administrator, Wichita Falls	1,351.43	772.88
Magee, R. B., Wichita Falls	738.75	517.11
Manson Oil Co., Chickasha, Okla.	28,880.48	9,037.66
Markham & Dunning, Fort Worth	212,319.65	68,848.28
Mead Brothers, Inc., Tulsa, Okla.	6,967.16	3,904.29
Murchison Oil Co., Dallas	32,196.79	10,757.88
Marlin Oil Syndicate (M. O. Swallow, receiver), Longview	20,182.57	6,826.20
Maxwell, J. C., Fort Worth	28,484.89	8,268.96
Meridian Petroleum Corp. of Texas, Tulsa, Okla.	36,558.48	11,891.76
Moran, J. J., et al, Wichita Falls	3,442.59	1,868.93
Magnolia Petroleum Co., Dallas	3,839,038.51	1,512,680.54
Martin, N. H., Wichita Falls	3,361.83	3,832.60
Morgan, Ray, et al, Fort Worth	727.24	341.42
Mecon Oil Co., Liberty	2,223.89	1,144.05
Mendenhall Oil Co., Cisco	908.64	440.42
Moody-Seagraves Producing Co., Houston	454,012.90	240,764.26
Mordyan Petroleum Co., Pampa	22,583.87	8,569.26
Mues & MacDermott, Fort Worth	310.16	205.66
Martin & Hamilton, Wichita Falls	3,671.02	1,712.61
Merren, K. E., Shreveport, La.	9,951.07	4,380.03
Merren, K. E., trustee, Shreveport, La.	54,103.06	15,868.86
Midland Oil Co., Fort Worth	118.45	49.66
Madison Oil & Gas Co., Electra	2,159.11	1,094.73
Marnet Oil & Gas Co., Tulsa, Okla.	4,611.69	2,213.10
Montgomery-Rea-Montgomery, Sedwick	930.10	422.33
Mabee, J. E., Co., Tulsa, Okla.	113,852.02	31,037.11
Martin, E. W., San Bernardino, Calif. (June 30, 1931)	30,539.12	7,376.25
Medio Oil Co., San Antonio	761.27	242.52
M-C-H Co., Ada McLemore, Albany (June 30, 1931)	453.00	258.54
M-C-H Co., Ada McLemore, Albany (Sept. 30, 1931)	261.14	91.40
Mullendore, Berry & Berry, Cleveland, Okla.	4,625.01	3,145.01
Mullendore, Berry & Berry, Cleveland, Okla.	136,228.00	16,240.12
Mills & Garitty, Corsicana	2,047.02	1,023.01
Merrick & Bristow, Ardmore, Okla.	25,074.06	6,484.09
Merrick & Lamb, Ardmore, Okla.	18,703.41	5,330.56
Moody Corp., Lewis Fisher and Thos. H. Ball, rec's., Houston	455,480.60	102,220.20
Meredith & Gant, Wichita Falls	1,561.16	670.89
Minor Oil Co., Beaumont	7,280.86	3,349.19
Madden, E. B., Alney (June 30, 1931)	11,304.28	6,180.93
Medina Oil & Gas Association, San Antonio	95.55	42.39
N		
Nash & Windfohr Oil Corp., Graham	33,310.16	17,030.68
National Oil & Grease Co., Dallas	117,023.00	11,702.30
Nat Hunter Producing Co., Houston	676,750.24	219,080.95
National Oil Co., San Antonio	545.19	232.97
Newport & Ohio Petroleum Co., Newport, N. Y.	448.96	271.48
Noack Oil Co., Rockdale	1,052.55	444.43
Noack & Lanning, Rockdale	398.93	163.52
Noack & Lanning, Rockdale	167.10	93.19
Noack & Lanning, Rockdale	74.44	30.52
Navarro Oil Co., Houston	344,728.68	100,166.69
Number Nine Oil Corp., Tulsa, Okla.	973.34	562.65
Nash, Windfohr & Perry, Austin	38,902.92	15,597.79
Newton-Palmer Oil Co., Rockdale	376.74	160.49
Neversuch Oil Co., Mexia	687,551.00	8,379.03
Newton & Lillie, Goose Creek	17,579.56	7,981.37
O		
Oliphant, A. G., Tulsa, Okla.	83,696.40	26,525.14
O'Neil, John T., Los Angeles, Calif.	78,543.47	13,714.07
O'Neil, John, Wichita Falls	11,733.32	5,795.60
Owenwood Pool No. 3, J. W. Robbins, trustee, Fort Worth	35,168.56	9,011.48
Oil Investment Co., Wichita Falls	1,870.96	952.36
O'Hern, John J., Tyler	26,979.45	13,287.85
Omilak Oil Co., Somerset	105.65	47.00
Orange Petroleum Corp., Orangefield	28,952.24	13,759.83
Owen-Sloan Oil Co., Tulsa, Okla.	56,705.88	15,608.65
Oasis Oil Co., Wichita Falls	85.23	51.13
Oriental Oil Co., Dallas	61,710.10	13,185.40
Oils, Inc., Oklahoma City, Okla.	8,117.75	5,520.07
O'Hern & Alworth Co., Laredo	2,036.59	911.63
Olvey, J. W., & Clark Sample, El Dorado, Ark.	148,596.10	42,499.16
Olean Petroleum Co., Bristow, Okla.	13,233.05	4,641.08
Olney Oil & Refining Co., Wichita Falls	336.62	161.01
P		
Pace & Ward, Breckenridge	722.04	339.66
Petroleum Producers et al, Wichita Falls	23,658.63	8,806.95
Philmack Oil Co., Tyler	88,897.31	13,687.38
Pilot Oil Co., Dallas	492,026.87	76,419.24
Piner, Robert T., Fort Worth	91.25	55.00
Proctor, George, Wichita Falls	14,563.09	7,440.11

(Continued on next page)

TEXAS GROSS PRODUCTION, THIRD QUARTER, 1931

Name and address—	Barrels	Value
Paggi, Charles, & Co., Beaumont	480.22	223.11
Paggi Bros. Oil Co., Beaumont	7,289.83	3,364.32
Premier Oil Corp., Tyler	8,409.10	5,718.19
Producers Drilling Co., Wichita Falls	1,543.38	754.18
Penn Oil Co., Dallas	6,537.08	2,410.15
Phillips Petroleum Co., Bartlesville, Okla.	359,648.66	131,528.32
Phillips Petroleum Co., Bartlesville, Okla.	1,571.89	631.19
Phillips Petroleum Co., Bartlesville, Okla.	3,416.83	1,153.66
Phillips Petroleum Co., Bartlesville, Okla.	295,547.07	129,695.38
Phillips Petroleum Co., Bartlesville, Okla.	9,803.69	4,905.14
Phillips Petroleum Co., Bartlesville, Okla.	6,507.03	3,237.62
Phillips Petroleum Co., Bartlesville, Okla.	1,094.86	547.78
Phillips Petroleum Co., Bartlesville, Okla.	4,816.23	2,390.73
Phillips Petroleum Co., Bartlesville, Okla.	21,044.16	10,217.91
Phillips Petroleum Co., Bartlesville, Okla.	4,460.48	2,311.53
Phillips Petroleum Co., Bartlesville, Okla.	11,478.28	6,409.42
Phillips Petroleum Co., Bartlesville, Okla.	923.87	474.92
Phillips Petroleum Co., Bartlesville, Okla.	31,224.66	15,412.34
Phillips Petroleum Co., Bartlesville, Okla.	175,503.96	78,554.56
Phillips Petroleum Co., Bartlesville, Okla.	110,919.69	29,076.58
Phillips Petroleum Co., Bartlesville, Okla.	31,554.16	8,566.81
Phillips Petroleum Co., Bartlesville, Okla.	23,085.13	6,281.80
Phillips Petroleum Co., Bartlesville, Okla.	9,598.91	2,513.17
Phillips Petroleum Co., Bartlesville, Okla.	82,997.43	21,738.40
Phillips Petroleum Co., Bartlesville, Okla.	45,596.43	23,864.32
Philp Brothers, Beaumont	2,970.64	1,335.88
Pinto Oil Co., Mineral Wells	314.96	125.98
Producers Supply & Tool Co., Marietta, Ohio	19,476.06	10,223.06
Panhandle Refining Co., Wichita Falls	109,173.81	53,112.96
Petroleum Marketing Corp., Houston	239,768.23	42,786.12
Petroleum Producers Co., Wichita Falls	63,760.83	42,748.18
Primrose Refining Co., Wichita Falls	4,976.82	2,372.24
Producers & Refiners Corp. of Texas, Independence, Kans	4,655.72	1,777.74
Putnam Oil Co., Tulsa, Okla.	13,662.55	7,350.32
Palmer & Burch, Inc., Wichita Falls	6,051.04	3,221.93
Prairie Oil & Gas Co., Independence, Kans	349,142.71	74,261.58
Prairie Oil & Gas Co., Independence, Kans.	393,324.93	185,764.25
Pratt, Thomas H., Brenham	625.06	402.93
Philmack Oil Co., Tyler (June 30, 1931)	8,446.86	1,267.03
Pearson Oil Co., San Antonio	234.70	187.76
Pearson Oil Co., San Antonio	77.70	62.16
Paraffine Oil Co., Houston	13,351.24	6,102.93
Petroleum Finance Corp. of Texas, Longview	41,258.73	12,381.86
Pivoto, M. E., Sour Lake	3,409.48	1,747.26
Pois, Fine & Schulz, Wichita Falls	551.88	233.41
Pois, M., et al, Wichita Falls	3,321.49	1,632.42
Pois, M., trustee, Wichita Falls	130.76	61.10
Perkins & Snider lease, Wichita Falls	4,186.41	2,037.01
Pollard, W. E. & C. E., Pampa	4,001.41	1,984.09
Price-Russell & Co., Ranger	2,659.00	1,666.25
Palmer, Freddie Oil Co., Rockdale	76.93	27.60
Peery, Thomas H., Wichita Falls	3,864.07	1,936.51
Peery, Woody & Boller, Wichita Falls	113,665.41	44,126.12
Permian Oil Co. & Gibson, Inc., Eastland	2,544.09	629.63
Plummer, Albert, Houston	12,301.16	6,796.82
Pursel, Carl (Grace Oil Co. & Darby Lynde Co.), Tulsa, Okla.	13,738.23	6,792.22
Pemeta Oil Co., Fort Worth	3,219.16	1,617.46
Pilkerton, F. L., Burkburnett	628.22	314.11
Pointer Oil Co., Waco	23,926.17	5,623.85
Palm, F. N., et al, Moran	564.48	235.93
Pioneer Oil, Gas & Refining Co., Danville, Ill.	948.68	360.74
Pitzer & West, Breckenridge	22,405.09	11,167.57
Plymouth Oil Co., Pittsburgh, Pa.	71,536.01	20,054.54
Poole, B. O., Batson	1,861.82	858.76
Porterfield, R. R., Overton	2,910.24	1,501.10
Production Purchasing Co., Eastland (June 30, 1931)	666.77	289.93
Production Purchasing Co., Eastland	1,845.21	926.60
Perkins & Cullum, Wichita Falls	95,709.85	45,808.74
Producers Oil Co., Tulsa, Okla.	58,451.32	12,955.33
Poor Boy Oil Co., Rockdale	306.53	119.54
Pope, Ernest, Saratoga	449.35	211.76
Pennowa Oil & Gas Co., Skiatook, Okla.	6,475.29	2,421.40
Piney Oil & Gas Co., New York City	1,444.55	490.97
Powell, J. L., Estate, Wichita Falls	269.38	184.27
Panhandle & Santa Fe Ry Co. (formerly K.C.M.&O.Ry. Co. of Texas), Wichita, Kans.	4,219.24	1,265.77
Pettit Oil Corp., Trees, La.	749.03	384.76
Primrose Oil Co., Sourlake	237.07	130.39
Pelican Natural Gas Co., Inc., Shreveport, La.	20,047.00	6,815.98
Pure Oil Co., Chicago, Ill.	1,422,681.08	394,424.11
Pure Oil Co., Chicago, Ill.	319,784.64	92,146.67
Pure Oil Co., Chicago, Ill.	413,513.16	217,096.56
Pure Oil Co., Chicago, Ill.	1,870,978.91	930,575.72
Piper, L. E., trustee, Vernon	1,570.29	756.72
Q		
Quinan, H. W. (formerly Blue Bonnett Petroleum Corp.), San Antonio	624.66	266.09
Quinan, H. W. (formerly Blue Bonnett Petroleum Corp.), San Antonio	624.66	266.11
R		
Reserve Petroleum Co. of Texas, Tulsa, Okla.	30,718.91	13,381.50
Rock Creek Oil Corp., Amarillo	2,098.12	651.77
Rockwell, J. A., & Co., Warren, Pa.	1,722.26	818.75
Randado Oil Corp., Oklahoma City, Okla.	11,323.38	5,752.39
Rathke Oil Co., Wichita Falls	17,444.54	8,865.25
Robertson, R. R., Wichita Falls	3,260.56	1,543.05
Riordon, J. L., McCamey (May, June, July, 1930; Jan., Feb., March, April, 1931)	560.08	574.56
Rancho Oil Co., Fort Worth	9,951.62	5,030.67
Rhodes & Highers, Breckenridge	4,341.37	2,164.01
Rhodes, Highers & Christie, Breckenridge	116.78	58.03
Robert Oil Corp., Breckenridge	32,384.31	14,696.75
Rushing, Dr. J. S., Longview	59,813.81	25,994.55
Robinson, M. L., Humble	1,021.28	525.32
Rowe, J. G., Wichita Falls	2,867.21	1,447.78
Ramming, R. W., Wichita Falls	264.78	125.50
Ramming, Staley & Ramming, Wichita Falls	372.49	207.06
Reed, W. M., Breckenridge	827.22	355.72
Robinson, Arthur D., Dallas	3,912.24	1,683.58
Reno Oil Co., Sistersville, W. Va.	40,510.79	20,150.26
Robertson Drilling Co., Fort Worth	8,115.04	3,518.72
Reed, Crenshaw & Glass, Nowata, Okla.	6,400.42	3,462.17
Richardson & Kelsey, Fort Worth	46,298.36	12,894.39
Riner & Bailey, Wichita Falls	21,394.57	10,742.50
Riner & Omohundro, Wichita Falls	10,513.53	5,511.01
Rio Bravo Oil Co., Houston	397,260.28	196,988.97
R. M. V. Oil Co., Henderson	60,968.96	21,612.89
Root & Rhodes, Eastland	1,843.00	811.00
Ross, Dwight M., Wichita Falls	1,216.61	624.90
Roth & Faurot Oil & Gas Co., Independence, Kans.	3,370.09	1,499.39
Ranell Oil Co., Oklahoma City, Okla.	3,252.72	1,648.63
Ramsel, W. T., Oil Co., Rockdale	1,129.08	485.51
Reiter-Foster Oil Corp., Tulsa, Okla.	7,196.52	2,502.94
Riggs, E. R., Graham	34,244.62	17,135.91
Ruyle Farm & Oil Co., Wichita Falls	6,303.35	3,059.72
Rector & Davidson, Dallas	37,632.46	7,981.03
Reeder & Scarborough, Wichita Falls	3,068.99	1,568.93
Reinhart, M. J., trustee, Oklahoma City, Okla.	404.42	214.69
Rycade Oil Corp., Houston	4,216.57	1,838.30
Republic Production Co., Houston	608,321.69	215,330.20
Root, C. M., Eastland	5,012.00	2,456.00
Root & Fehl, Eastland	1,941.00	901.00
Root, Rhodes, Gilman & McMurray, Eastland	3,623.00	1,922.00
Ryan Consolidated Petroleum Corp., Tulsa, Okla.	49,899.84	21,865.24
Roeser & Pendleton, Inc., Fort Worth	251,036.34	82,184.60
Rentex Oil Co., San Antonio	6,141.32	2,798.73
Rockdale Junior Oil Co., Rockdale	153.38	62.88
Ramming, William F., Wichita Falls	177.69	99.32
Ribble, O. C., South Bend (June 30, 1931)	222.17	116.95
Ribble, O. C., South Bend	174.80	85.98
Rowan & Nichols Oil Co., Fort Worth	12,266.16	5,394.46
Republic Supply Co., Houston	15,290.79	7,466.77
Roberts, H. W., Wichita Falls	1,654.74	850.21
Right-of-Way Oil Co., Muenster	707.15	336.09
Richmond Drilling Co., Texon	4,447.73	1,157.98
Ruthada Oil Co., Oklahoma City, Okla.	15,418.52	6,174.59
Red River Oil Co., Tulsa, Okla.	21,629.41	5,515.06
Rountree & Kemp, Rockdale	312.70	132.92
Refugio Oil Corp., Refugio	32,776.88	11,606.44
Russell & Wilson, Wichita Falls	4,106.57	1,736.11
Reclamation Co., The, Fort Worth	2,267.92	946.27
S		
Skelly Oil Co., Tulsa, Okla.	264,921.39	66,249.09
Skelly Oil Co., Tulsa, Okla.	306,920.01	148,564.86
Southern Production Corp., El Dorado, Ark.	22,162.48	9,966.20
Spencer, H. E., trustee, St. Louis, Mo.	626.84	311.16
Suloch Oil Co., Amarillo	5,213.70	2,163.47
Stekoll, Harry, Tulsa, Okla.	32,400.92	13,905.55
Stein, H., Ranger	83.43	31.84
Summerfield Oil Co., Tulsa, Okla.	129.53	65.01
Sandefer-Atkinson-Daniel Oil Corp., Breckenridge	1,356.73	902.75
Saratoga Oil Co., Wichita Falls	470.99	249.59
Shattuck, Mrs. Nellie S., Dallas	397.99	75.14
Smith & McDannaid, Electra	781.48	330.65
Smith & McDannaid, Electra	17,817.08	7,032.52
Star Drilling Co., Wichita Falls	18,035.76	8,900.97
Sedwick Oil Co., Tulsa, Okla.	3,343.26	1,720.61
Sink, Joel, Corsicana	193.00	106.00
Stella Oil Co., Beaumont	11,036.49	5,177.38
Straughan & Texannati Oil Co., Mertzon (6-30-31)	1,056.75	363.31
Straughan & Texannati Oil Co., Mertzon (9-30-31)	802.10	320.81
Schaffner, E. N., Cross Plains	568.36	240.18
Shamrock Oil & Gas Co., Amarillo	131,559.87	54,148.49
Showalter-Russell, Longview	14,011.53	5,781.14
Skia-Tex Petroleum Co., Amarillo	13,334.30	5,354.08
S. R. & C. Oil Corp., San Antonio	68,091.77	31,448.78
Stansyivania Oil & Gas Co., Amarillo	7,403.97	2,741.00
St. Marys Oil & Gas Co., St. Marys, W. Va.	35,086.06	14,461.44
Sun Oil Co., Dallas	1,297,803.06	688,759.96
Swearingen, W. B., receiver, Forest Oil Corp., Luling	5,086.20	2,017.65
Southern Interstate Co., Henderson (6-30-31)	8,481.12	1,272.15
Simpson, O. H., Fort Worth	747.47	276.92
Strawn & Fisher, Electra (12-31-30)	693.82	673.00
Strawn & Fisher, Electra (3-31-31)	404.55	311.50
Strawn & Fisher, Electra (6-30-31)	1,282.56	615.63
Shell Petroleum Corp., St. Louis, Mo.	2,250,388.01	483,795.95
Shell Petroleum Corp., St. Louis, Mo.	3,818,795.91	277,732.17
Smith Salvage Co., Houston	753.50	414.43
Speed, O. D., Corsicana	244.04	120.87
Shaffner, J. C., and Margaret L., Coleman	4,852.00	1,674.67
Shappell Oil Co., Wichita Falls	32,975.30	16,369.77
Sherman Oil & Gas Co., Sherman	1,142.34	544.96
Swearingen Oil Co., San Antonio	2,988.93	1,500.40
Smith, McIntosh & Thomas (Henry lease), Cameron	467.56	191.70
Schultz & Weaver, Wichita Falls	7,767.55	4,308.97
Scott & Nance, Graham	2,897.81	1,460.86
Scott & Britton, Graham	198.97	127.35
Scarborough, W. A., Burkburnett	1,242.34	602.71
Sedwick & Webb, Albany	223.81	127.57
Sentinel Petroleum Corp., Chicago, Ill. (6-30-31)	191.32	158.15
Sentinel Petroleum Corp., Chicago, Ill. (9-30-31)	192.25	82.19
Simms Oil Co., Dallas	547,420.55	96,087.36
Simms Oil Co., Dallas	431,030.50	167,070.81
Smith & Ash, Wichita, Kans.	14,319.78	6,633.12
Smith, McIntosh & Thomas, Cameron	858.85	355.40
Smith, Levi, Texon	170.00	37.40
Smith, Levi, and Fred Hyer, Texon	656.00	252.04
Smith, Levi, and others, Texon	9,044.53	4,665.00
Smitherman-Greer and others, Shreveport, La.	100,245.81	27,889.48
Snowden & McSweeney Co., New York	114,155.76	59,958.49
Southern Oil & Production Co., Fort Worth	337.57	21.29
Stanolind Oil & Gas Co., Tulsa, Okla.	1,237,532.98	330,186.51
Stanolind Oil & Gas Co., Tulsa, Okla.	1,698,504.17	557,842.21
Standard Oil Land & Leasing Co., Electra	84.30	33.71
Stidham & Thrasher, Tyler (6-30-31)	766.61	223.80
Stidham & Thrasher, Tyler (9-30-31)	740.13	191.50
Swanner, John L., Wichita Falls	1,136.35	593.24
Sheffield Oil Co., Houston	3,919.83	1,842.32
Simpson-Fell Oil Co. and others, Ardmore, Okla.	7,563.21	3,779.95
Sinclair Oil & Gas Co., Houston	160,827.80	82,135.76
Skipper, B. A., Oil Co., Inc., Longview	28,696.55	6,066.39
Spencer, H. H., & Co., Burkburnett	308.62	141.88
Schlaffke, Edward, Electra	84.12	53.83
Schlaffke & Blair, Electra	12,939.74	6,763.05
Smith, E. L., Oil Co., Inc., Mexia	57,542.95	22,505.02
Smith, Mrs. James L., Amarillo	7,426.64	3,158.83
Stantex Petroleum Co., Oklahoma City, Okla.	15,012.60	8,916.69
Stoops, J. P., Ranger	416.53	227.50
S. & W. Oil Co., Amarillo	5,293.62	2,012.64
Sand Creek Oil Co., Amarillo	3,335.00	823.75
Sayra Oil Co., Wilmette, Ill.	34,090.45	12,790.77
Shasta Oil Co. et al, Longview	41,644.61	10,549.64
Smith, W. B., et al, Eastland	334.29	172.36
Southern Petroleum Exploration, Inc., Sistersville, W. Va.	49,570.07	21,777.94
Stroube & Stroube, Corsicana	25,846.09	11,120.40
Stock, H. L., Cisco	1,638.19	929.52
Saxet Oil Co., Houston	237,724.35	118,680.50
Sakaba Oil Corp., Shreveport, La.	26,300.12	9,890.26
Schnur, W. J., and Phil D. Williams, receivers, LaSalle Pet. Corp., Tulsa, Okla.	3,040.13	1,396.01
Sequoia Oil Co., Fort Worth	405.89	159.68
Sequoia Oil Co., Fort Worth	17,654.03	6,427.44
Shertzer Brothers, Dewey, Okla.	3,465.86	1,896.39
Shoreline Oil Co., Mount Pleasant	13,392.60	4,697.71
Steen Drilling, Inc., Duncan, Okla.	19,541.04	7,073.76
Storey-Friebele-Duffey Oil Co., Winston-Salem, N. C.	1,987.83	580.99
Storey-Friebele-Duffey Oil Co., Winston-Salem, N. C.	10,105.45	2,844.32
Storey-Friebele-Duffey Oil Co., Winston-Salem, N. C.	6,801.32	1,701.44
Salado Oil Co., San Antonio	1,349.09	608.83
Schermerhorn-Winton Co., Tulsa, Okla.	90,403.41	24,972.30
Somerset Crude Oil & Ref. Co., Somerset	2,412.36	1,031.20
Somerset Oil Co., Somerset	822.82	348.21
Stepp & Kirster, Knoxville, Tenn.	15.00	6.16
Syndicate Oil Corp., Rochester, N. Y.	153.25	107.28
Sircovich, A., and Mrs. F. M. Thomas, Houston	209.07	86.69
Staley, J. A., Wichita Falls	1,202.71	471.13
Stanley Lewis-Su-Ni Oil & Royalty Co., Oklahoma City, Okla.	5,152.74	3,503.86
Surf Oil Co., Abilene (3-31-31)	2,392.26	2,076.56
Surf Oil Co., Abilene (6-30-31)	1,794.71	911.91
Swearingen, W. B., receiver, Forest Oil Corp., Luling (3-31-31)	2,069.82	1,286.31
Swearingen, W. B., receiver, Forest Oil Corp., Luling (6-30-31)	5,518.46	2,735.73
Shallow Sand Oil Co., Fort Worth	167.35	82.49
Shankle Newton Oil & Gas Co., Inc., Laredo	36,506.42	18,492.10
South Oil Co., Rosston, Ark.	160.06	78.60
Slicker, Homer, Cisco	715.46	326.03
Stovall, E. C., & Son, Graham	2,182.04	1,340.96
Stratton, Ed. F., Pioneer	259.48	100.39

(Continued on next page)

TEXAS GROSS PRODUCTION, THIRD QUARTER, 1931

Name and address—	Barrels	Value
Supreme Oil Co., Orange	542.02	303.56
Superior Oil Co., Dallas	49,429.95	18,100.88
Salmon Oil Co., Dallas	16,470.00	5,630.29
Schermerhorn Oil Co., Tulsa, Okla.	124,007.09	34,784.04
Selby Oil & Gas Co., Tulsa, Okla.	56,400.14	16,039.04
Sinclair Oil & Gas Co., Tulsa, Okla.	2,650,900.79	677,261.50
Skipper-Bivins Oil Co., Inc., Longview	16,808.08	6,109.64
Sprague O.l Co., Ardmore, Okla.	4,858.87	1,298.30
South Texas Petroleum Co., Houston	84,618.33	50,903.25
South Shore Oil Co., Houston	4,692.75	4,693.75
Sessions, I. P., Rockdale	427.44	182.29
Seybert Brothers, Mooringsport, La.	2,432.85	1,300.61
Skinner, E. W., Saratoga	3,599.94	1,580.80
Southwest Royalty Co., Wichita Falls	5,277.83	2,554.04
Strelsky, Joe, and Hefley, Rockdale	282.86	121.62
Southern Drilling & Production Co., Bay City	5,747.25	3,105.87
Shaw Oil Co., Dallas	138,724.77	58,723.13
Slick-Seeligson, Inc., Oklahoma City, Okla.	1,792.98	2,141.73
Staniforth, M., Wichita Falls	3,273.59	1,691.84
States Oil Corp., Eastland	40,803.73	18,956.77
Schoolfield, R. E., Wichita Falls	254.51	118.62
T		
Texas American Syndicate, Dallas	12,431.00	3,709.14
Tidal Oil Co., Tulsa, Okla.	1,175,471.99	388,333.87
Texas Gas Co., Houston	1,560.76	877.93
Thoil Oil Co., Beaumont	2,723.31	1,517.84
Thomasson, E. M., & Co., Inc., Denver, Colo.	312.59	150.82
Tidwell, R. V., trustee, Graham	3,443.55	1,941.04
Tucker Oil Co., Wichita Falls	66,025.97	29,863.90
Tulsa Oil Co., Tulsa, Okla. (July 1 to August 13, 1931)	243,696.37	42,330.43
Tulsa Oil Co., Tulsa, Okla. (August 12 to September 30, 1931)	18,940.04	12,736.97
Texas Consolidated Oil Co., San Francisco, Calif.	9,470.70	3,544.57
Triangle Petroleum Co., Inc., Fort Worth	633.79	300.24
Trinity Production Co., Wichita Falls	174.31	98.59
Tunstill, W. A., Fort Worth	13,387.07	4,716.48
Tarver, A. E., Shreveport, La. (Aug. 12 to Sept. 30, 1931)	9,338.05	4,198.01
Tarver, A. H., Shreveport, La. (July 1 to Aug. 12, 1931)	8,565.61	1,667.09
Taylor Development Co., Taylor	1,460.81	568.79
Texon Oil & Land Co., Fort Worth	49,168.09	13,119.54
Theis Oil Co., Sour Lake	2,712.13	1,314.98
Thomas, J. Elmer, Fort Worth	5.90	4.17
Thompson, J. E., Humble	441.00	219.00
Timblin, W. E., Wichita Falls	157.81	84.74
Timms, L. W., Oil Corp., Amarillo	3,180.79	1,261.94
Timms-Dietsch Oil Corp., Amarillo	3,374.23	1,303.05
Timms, Evelyn T., Amarillo	4,091.19	1,433.04
Timms-Fogarty Oil Corp., Amarillo	954.97	299.18
Timms-Robinson Oil Corp., Amarillo	557.93	242.86
Trippiehorn, D. R., Pampa	7,294.23	3,492.27
Traylor-Rutherford Oil Corp., Refugio	34,092.09	16,794.03
Texas Pacific Coal & Oil Co., Thurber	97,698.61	21,545.64
Texas Pacific Coal Oil Co., Thurber	327,884.01	114,665.18
Texas Petroleum Development Co., Cameron	3,178.28	1,366.65
Texuia Oil Co. (formerly Baker & Camp), Wichita Falls	22,923.22	7,692.35
Texota Corp., El Dorado, Ark.	5,139.36	3,494.76
Treat, R. M., Oil & Gas Co., Pittsburgh, Pa.	855.00	427.50
Tedder, J. E., Liberty	6,010.00	2,609.71
Tex Cal Oil Co., Brownwood	2,820.82	1,341.43
Thaxton, Mannie S., executrix, Austin	307.34	155.00
Thomas & Tarver, Inc., San Antonio	77,852.65	41,498.75
Teatsorth, L., et al, Eastland	934.26	434.88
Thomas, Sam, trustee, Marshall	10,072.36	4,335.84
Tidwell, H. L., trustee, Graham	856.68	391.73
Turman Oil Co., Tulsa, Okla.	188,272.18	101,442.07
Taylor Link Oil Co., Houston	42,717.86	11,722.00
Texas Company, The, Houston	3,471,143.81	1,425,247.10
Thomas, G. R., receiver, Greene Production Co., Fort Worth	37,160.64	13,382.61
Tucker, W. B., Dallas	29,002.09	10,888.59
Tannehill, L. B., Albany	12,596.48	6,697.61
Texas Petroleum Co., San Antonio	27,036.92	9,400.55
Tucker, Art, Graham	511.52	181.57
Towns, M. K., Luling	10,478.06	4,434.67
Texas Unity Oil Co., Houston	288,850.10	34,775.17
Trans Coastal Oil Co., New Orleans, La.	2,620.65	1,317.45
Tennant, Ernest R., receiver, Dallas	4,795.47	651.96
Travelers Oil Co., Amarillo	7,818.69	3,436.01
Trevino Oil Corp., Laredo	21,296.76	10,786.53
Trimount Petroleum Co., Shreveport, La.	4,428.71	2,183.90
Triangle Oil & Gas Co., Rockdale	683.39	291.53
Taylor-Sibley Syndicate, Dallas	2,234.30	1,112.08
Teel Production Co., Sayre, Okla.	1,109.00	488.52
Texas Trading Co., Tyler	18,057.41	9,422.25
Tex-Jersey Oil Corp., Tyler	24,485.58	6,127.46
Thomason & Fitzsimmons, Shreveport, La.	9,885.50	3,484.08
U		
Union Production Co., Rockdale	2,119.61	925.06
United Producers Co., Wichita Falls	22,570.30	11,875.61
University Section 24, San Angelo	3,453.54	968.26
Union Oil Co. of Nevada, Abilene	953.30	390.85
United Production Corp., Houston	1,043,561.18	555,606.82
Unity Oil Co., Beaumont	11,153.00	5,147.00
Urban, O. J., et al, Ranger	694.31	311.56
Union Oil & Mining Co., Tulsa, Okla.	3,940.21	1,733.68
Upchurch & Allen, Tyler	94,859.33	16,776.45
United Oil Corp., Wichita Falls	6,563.91	2,858.87
Underwood Drilling Co. (Erwin lease), Wichita Falls	631.31	302.98
Underwood Drilling Co. (Underwood-Consolidated Ward lease), Wichita Falls	1,715.35	595.34
Underwood Drilling Co. (Ward lease), Wichita Falls	2,186.75	1,162.02
Underwood Drilling Co. (Perkins lease), Wichita Falls	2,809.29	1,114.99
Underwood Drilling Co. (Underwood & Campbell lease), Wichita Falls	1,936.38	972.02
Upland Oil Co. & Cady, Conner & Crenshaw, Tulsa, Okla.	6,891.95	2,963.35
V		
Ventura Oil Co., Wichita Falls	27,855.03	8,293.60
Van Cleave Trust, Baltimore, Md.	373.49	167.44
Van Wormer, F. E., Wichita Falls	1,129.63	577.36
Vincent, A. G., receiver, Waskom	314.97	134.08
Vacuum Oil Co., Inc., Houston	91,457.02	15,885.12
Vacuum Oil Co., Inc., Houston	54,639.59	30,068.62
Valerio, Inc., Longview	303.73	138.56
Vigil Oil & Gas Co., Wichita Falls	4,796.67	2,284.16
Virginia Oil Assn., Inc., Fort Worth	1,788.96	903.88
W		
Whittington, J. O., Longview	9,519.22	6,473.06
Webster, C. J., Oil & Gas Co., San Antonio	5,898.21	4,010.80
Weaver-Crim Corp., Eastland	72,820.50	34,053.33
Whitehill Oil Corp., Tulsa, Okla.	4,316.55	2,221.89
Woodruff Development Co., Inc., Cleveland, Ohio	382.00	168.20
Wood, Benton, Lesh & McCall, Nocona	2,872.99	1,038.39
Wallace & Davis, Minerva (6-30-31)	463.63	256.70
Wallace & Davis, Minerva (9-30-31)	396.64	170.56
Wallace & Emrick, Minerva (6-30-31)	313.77	169.69
Wallace & Emrick, Minerva (9-30-31)	275.28	111.13
Wentz, L. H., Oil Division, Ponca City, Okla.	4,234.16	2,396.69
Williams, Mrs. Cora B., executrix, Dallas	2,511.94	1,213.29
Wright, H. L., receiver, Mirando City	10,605.05	5,523.78
Weekley Oil Corp., Fort Worth	32,544.82	8,719.96
Wilson & Brown, Kilgore	29,413.01	5,944.64
Watts, C. D., Moran	383.15	191.57
Warner-Quinlan Co. of Texas, Houston	177,873.46	57,116.30
Welch, Charles (Margaret Oil Co.), Albany	225.00	90.00
Whale Oil Corp., Corsicana	12,263.23	4,962.85
Wilson Drilling Co., Wichita Falls	7,473.10	3,585.49
Waco Oil Co., Waco	135.50	47.42
Whitefield, B. V., Oklahoma City, Okla.	322.30	170.35
Woods, O. D., & C. C., Ranger	631.99	302.70
Wilson & Swaim, Woodson	981.96	419.11
Wilson Oil Co., Houston	2,525.99	855.13
Wilson Oil Co., Houston	7,177.32	2,558.17
Witcher, W. C., et al, Wichita Falls	385.08	187.80
Weaver & Pois, Wichita Falls	1,361.04	626.82
Webb, J. R., Corsicana	170.62	86.19
Webb, J. R., & J. H. Bryant, Corsicana	277.00	94.81
Wilkins, L. A., Burkburnett	5,104.49	2,450.15
World Oil Co., Inc., Fort Worth	6,525.34	1,724.42
Wilcox, H. F., Oil & Gas Co., Tulsa, Okla.	175,318.86	68,580.06
Woodburn Oil Corp., Dallas	535.42	171.27
Woodburn Oil Corp., Dallas	717.33	448.52
Walton, Blair & Schlaffke, Electra	1,909.99	1,007.82
Weido Oil Co., Saratoga	8,851.50	3,784.70
West, Mrs. Bessie M., Houston	1,250.39	652.29
Wheelock & Collins, Corsicana	7,094.63	4,240.82
Wo-Mac Oil Co., Wichita Falls	3,591.16	1,752.21
Woodley Petroleum Co., Shreveport, La.	190,283.39	56,941.96
Woody, W. C., Wichita Falls	3,864.07	1,936.51
Worth Petroleum Co., Fort Worth	3,865.10	1,851.56
Wainwright-West Oils, Ltd., & Foster, Henderson	16,528.00	6,328 00
Wainwright-West Oils, Ltd., & Foster, Henderson	21,159.00	8,646.00
Wallace, Dr. Charles William, and wife, Wichita Falls	38,179.90	18,577.93
West Texas Petroleum Corp., San Angelo	22,892.97	6,165.04
Western States Royalties Co., Chicago, Ill.	1,951.00	390.20
Wise & Jackson, Sapulpa, Okla.	11,992.53	4,226.20
Witherspoon, C. L., San Antonio	57,439.06	18,284.51
Witherspoon Oil Co., San Antonio	7,311.75	3,963.67
Westbrook Oil Corp., operating account, Fort Worth	68,655.98	25,251.83
Westbrook, R. A., production account, Fort Worth	11,149.53	3,982.15
Westexas Oil & Royalty Corp., Fort Worth	14,687.66	8,635.02
Witcher, Annie L., guardian, Wichita Falls	2,767.20	1,430.95
Waggoner Refining Co., Inc., Electra	97,453.38	43,328.29
Webb, Luther, Vernon	5,473.35	2,901.75
Webb, Luther, receiver, Vernon	8,677.07	4,358.70
Webb, Luther, receiver, Vernon	25,343.26	11,815.95
Werby, J. Z., Longview	31,839.27	10,921.23
West, C. K., Breckenridge	1,710.10	805.57
West, J. H., Fort Worth	4,776.46	2,532.85
Wise & Porterfield, Tyler	3,169.13	1,607.67
Warner Oil Co., Borger	2,620.50	1,149.19
Westheimer & Daube, Ardmore, Okla.	71,417.53	27,798.81
Williams, J. H., Somerset	133.41	46.54
Williams, J. H., Somerset	129.46	67.32
Wills Oil Co., Rockdale	719.64	309.44
Wahpoo Oil Co., Rockdale	819.00	353.70
White & Duncan, Wichita Falls	4,997.31	2,540.59
Wolf, D. L., Olney (6-30-31)	4,520.12	1,886.60
Wolf, D. L., Olney (9-30-31)	4,117.30	1,817.84
White, James H., Wichita Falls	3,205.25	1,596.04
Webb Oil Co., Humble	2,911.24	1,392.30
Wilder, Jack H., Rice	310.43	157.67
Woods, C. D., & C. C., Ranger	397.79	176.69
Ward Oil Corp., Ardmore, Okla.	174,557.83	51,220.61
Weinert, H. H., Seguin	31,733.93	12,954.68
West Production Co, Houston	20,152.84	10,636.97
Wichita Production Co., Wichita Falls	7,577.55	2,862.07
Wilbarger Oil Co., Wichita Falls	1,011.02	436.47
Wilson-Broach Co., The, Beaumont	10,574.57	4,735.36
Wilson, W. I., Electra	739.19	414.93
Worth Oil Co., Wichita Falls	3,289.65	1,577.86
Washoma Petroleum Co., Enid, Okla.	6,694.39	3,135.39
Weiler, J. G., et al, Cross Plains	1,376.85	827.57
Woods & Bennett, Humble	5,028.77	2,308.21
Waggoner, E. F., & C. F. Klop, Tyler	4,495.79	2,005.85
Wilson, Lee, Estate, Wichita Falls	2,823.97	1,323.77
Woolf, W. C., Shreveport, La.	2,704.98	405.75
Y		
Yingling, S. C., for Southern Oil Corp., Winfield, Kans.	41,356.03	6,919.14
Yingling, S. C., for Southern Oil Corp., Winfield, Kans.	21,055.73	2,739.19
Yount Lee Oil Co., Beaumont	1,322,995.42	622,201.68
Z		
Zadie Belle Oil Co., Mineral Wells	423.28	208.93

ADDITIONAL REPORTS

Ajo Oil Corp., Dallas	1,380.74	938.90
Atkinson & Sandefer Oil Corp., Breckenridge	5,243.73	1,754.98
Adams & Prince, Amarillo (6-30-31)	13,238.23	5,789.41
Adams & Prince, Amarillo (6-30-31)	7,296.23	1,422.61
Adams & Prince, Amarillo (9-30-31)	13,268.19	5,521.10
Adams & Prince, Amarillo	7,248.08	1,374.09
Alpine Oil & Development Co., Alpine (period Oct., 1929, to March, 1931)	19,013.47	16,220.15
Apollo Oil Co. (L. P. Powell lease), San Angelo	5,555.97	1,444.67
Apollo Oil Co. (J. M. Nutt lease), San Angelo	943.62	566.18
Apollo Oil Co. (University lease, Sec. 32), San Angelo	162.07	36.37
Beard & Hammond Oil Co., Fort Worth	57,973.06	11,674.86
Bowers Oil Co., Vernon		442.54
Burch, G. R., Wichita Falls	1,723.44	898.78
Collins-Lanier Syndicate, Shreveport, La.	5,305.88	3,608.00
Costal Drilling Co., Tyler	17,472.21	5,702.16
Cunningham & Lynch, Graham	5,315.72	2,593.41
Cunningham & McDonald, Loving	409.75	243.37
Champlin & Bass, Holdenville, Okla. (6-30-31)	4,491.40	344.52
Champlin & Bass, Holdenville, Okla. (9-30-31)	8,339.35	1,639.63
Chapman, E. L., Fort Worth	117,994.33	28,420.77
Camp, John F., San Antonio	27,532.00	14,316.84
Castlebury, S. A., Vernon (9-30-31)	196.02	115.59
Consolidated Oil Co. of Texas, Wichita Falls	82,746.99	30,366.35
Collie, B. F., Breckenridge	799.74	391.74
Charter Oil Co., Brownwood	3,217.17	1,657.72
Dash Production Co., San Antonio	40,975.45	24,234.89
Dye & Gillette, Tulsa, Okla.	12,506.23	5,097.24
Dunaway Brothers, Pampa	1,533.24	587.53
Delaney, W. A., Jr., Ada, Okla. (6-30-31)	22,510.03	4,261.69
Delaney, W. A., Jr., Ada, Okla. (9-30-31)	32,339.14	8,925.56
Duncan & Holt, Dallas	1,822.95	1,239.77
Eslick, Mrs. Mattylee, Dallas	10,290.72	5,963.75
Erlewine, A. J., et al, Longview	1,973.53	841.80
Goldsmith, N. D., Olney	4,495.13	2,502.13
Graham, W. T., Cisco	78.82	32.74
Graham & Lash, Cisco	74.93	43.05
Glover, S. D., Vernon	819.44	435.71
Group No. 1 Oil Corp., Fort Worth	944,356.76	408,950.92
Gray & Adams, Gainesville	1,119.39	493.98
Gates Oil Co., Littleton, Colo.	1,644.71	542.70
Hunt, H. L., Tyler	741,715.37	215,752.90
Harris & Simons, Tulsa, Okla.	4,129.64	1,319.62
Hammond, J. G., Fort Worth	79.65	30.29
Hamilton, W. B., Wichita Falls	75,430.66	27,341.76
Investors Oil & Gas Co., Sioux Falls, S. D.	1,115.00	487.47
Imperator Oil Corp., Dallas	156,461.87	23,541.71
Jones, W. R., et al, Wichita Falls	13,751.18	6,467.67
Jackson, J. S., trustee, Sour Lake	1,304.25	717.34
James, Tom, Albany	1,785.18	995.55
James & Klinger, Albany	349.75	142.19

(Continued on next page)

TEXAS GROSS PRODUCTION, THIRD QUARTER, 1931

Name and address—	Barrels	Value
James, Klinger & Rowland, Albany	179.75	89.66
Kling, A. D., trustee, Shreveport, La.	16,626.80	5,615.05
Kistler, Frank B., & Co., Littleton, Colo.	2,334.38	794.25
Luling Oil & Gas Co., San Antonio	168,113.64	25,114.84
Lowenstein Oil Co., Rockdale	713.99	305.42
LeMaster, H. H., trustee, Tyler	5,142.95	3,497.21
McFall, J. M., Wichita Falls	376.48	218.57
McCutchin, Alex, Arp	5,663.80	3,279.92
McCrary, E. W., Tulsa, Okla.	2,671.94	1,264.33
Moore, R. E., Tyler	7,622.71	5,305.55
Mann, Floyd, Graham (9-30-31)	974.15	549.69
Mann, Floyd, Graham (6-30-31)	1,297.45	612.96
Mann, Floyd, Graham (6-30-31)	1,297.55	657.78
Mann, Floyd, Graham (3-31-31)	1,422.32	1,319.63
Moore, N. A., et al, Eastland	453.30	100.48
Major, A. W., Laredo	619.77	332.21
Murphy, J. F., et al, Sapulpa, Okla.	8,561.34	5,821.72
Mook-Texas Oil Co., Inc., Fort Worth	29,648.65	16,973.46
Moore, R. A., receiver Rex Pet. Corp., Orange	4,641.67	1,888.62
Overton Refining Co., Overton	124,045.95	15,681.67
Perkins, R. W., Kilgore	5,660.98	3,849.47
Putnam Supply Co. & McGee, Albany	420.85	189.63
Root Drilling Co., Eastland	3,914.00	2,192.00
Raizin, Abe, & Sam Raizin, Chickasha, Okla.	9,051.57	3,457.50
Schaffner-Wilson et al, Cross Plains	1,210.61	595.04
Simmons, T. K., Tulsa, Okla.	1,296.74	605.72
Smith, Lauren L., Inc., San Antonio	44,114.74	24,440.57
Saigh, N. A., San Antonio	757.83	338.72
Stewart, W. E., New York (9-30-31)	18,411.75	5,119.75
Stewart, W. E., New York (6-30-31)	7,727.31	1,159.08
Smith, J. R., Properties, Longview	20,207.01	6,828.95
Smith, H. R., Inc., Luling (9 months ending Sept. 20, 1931)	260,224.89	89,118.81
Sipe Springs Oil Co., Tulsa, Okla.	1,720.93	1,249.78
Spandsco Oil & Royalty Corp., Dallas (6-30-31)	14,356.58	4,008.03
Spandsco Oil & Royalty Corp., Dallas (9-30-31)	34,304.34	11,105.59
Swearingen, W. R., et al, San Antonio	2,616.86	1,364.38
Texas Trading Co., Tyler	24,881.37	5,996.32
Tilton, Elvin et al, Houston	6,530.72	2,803.89
Trans-Texas Oil Co., Inc., Midland	2,725.74	591.91
Trico Oil Co., Dallas	790.87	537.79
Thomas, J. A., Burkburnett	1,191.53	702.37
White, W. B., & Associates, Birmingham, Ala.	6,050.30	4,114.20
Wolfe, A. T., Wichita Falls	4,564.90	2,509.91

GULF PORT SHIPMENTS SHOW GAIN WITH OPENING OF EAST TEXAS

By Neil Williams

HOUSTON, Tex., Nov. 28. — A substantial increase in liftings of crude for coastwise trade, together with gains in export movement of both crude and refined products, resulted in a boost in water shipments from Gulf Coast ports for the month of October. Total shipments were 19,665,699.40 bbls. as compared with 18,771,941.89 bbls. in September. Coastwise movement of refined products fell off but this decrease was offset by the other gains.

The increase is due to a large extent to the opening of the East Texas Field, a large part of which crude finds outlet on the Gulf Coast. October is the first full month the field has produced since the field was opened in September following the military shutdown started August 17.

Shipments were:

Company and terminal—	Crude— Coastwise	Crude— Export	Refined— Coastwise	Refined— Export	Total
Atlantic Oil Prod. Co., Atreco	971,549.15	.....	27,089.44	.....	998,638.59
Atlantic Oil Prod. Co., Beaumont	.....	.....	.....	.....	.....
Gulf Ref. Co., Port Arthur	199,297.74	.....	2,182,644.17	.....	2,381,941.91
Humble Oil & Ref. Co., Baytown	187,690.00	.....	1,689,731.28	1,106,156.70	2,983,577.98
Humble Oil & Ref. Co., Harbor Island	2,414,342.00	.....	.....	.....	2,414,342.00
Humble Oil & Ref. Co., Ingleside	133,890.00	.....	.....	.....	133,890.00
Humble Oil & Ref. Co., Neches	.....	.....	.....	.....	.....
Humble Oil & Ref. Co., Texas City	395,489.00	.....	.....	.....	395,489.00
Magnolia Pet. Co., Beaumont	712,524.22	.....	2,564,895.11	.....	3,277,419.33
Pure Oil Co., Smiths Bluff	286,057.43	162,137.44	569,134.80	43,866.82	1,061,196.49
Standard Oil Co. (La.), Baton Rouge	109,509.00	161,918.00	227,202.00	838,070.00	1,336,699.00
Sun Oil Co., Sabine Pass	943,886.10	.....	.....	.....	943,886.10
The Texas Co., Port Arthur	1,117,254.00	601,136.00	1,002,123.00	1,018,106.00	3,738,619.00
Total October	7,471,488.64	925,191.44	8,262,819.80	3,006,199.52	19,665,699.40
Total September	6,653,771.64	636,371.00	8,914,689.49	2,566,609.76	18,771,941.89
Difference	817,717.00	288,320.44	651,869.69	439,589.76	893,757.51

DR. SPELLER HONORED

Dr. F. N. Speller, director of the department of metallurgy and research of the National Tube Co., was awarded the American Iron and Steel Institute medal for his paper last May on "Co-operative Research in the Iron and Steel Industry." Doctor Speller received his A.B., B.S. and D.Sc. degrees from the University of Toronto, Toronto, where he was born. Most of his life has been devoted to the steel industry. Starting as a chemist, in the open-hearth plant of the Carnegie Steel Co. at Homestead, he has gradually advanced until now he is director of the department of research of the National Tube Co., Pittsburgh. Some of his achievements include patents for improvements in rolling and finishing steel tubes and pipe, research on the cause and prevention of corrosion and patents on processes to control corrosion. He is the author of a book on "Corrosion" and of many papers before technical societies here and abroad.

EVALUATING ENGINEERS

AUSTIN, Tex., Nov. 28. — The Railroad Commission gave hearing to a large number of engineers on their bids for evaluating the property of the Lone Star Gas Co. for rate purposes. The commission at first had proposals based on per diem charges, but later asked bids for the entire project.

The purpose of the commission is to evaluate properties of the company before reviewing appeals made by the company from ordinances enacted by a number of municipalities reducing gas rates to consumers. Pending these appeals the commission has suspended operation of these gas rate reducing ordinances.

The commission after it decides what a fair rate at the gates of the cities should be will determine a reasonable charge of consumers.

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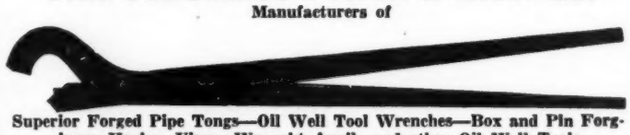

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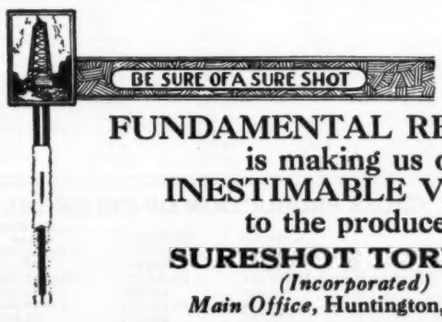

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Read the Classified Bargains on pages 76 and 77 of this week's issue.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Statement for September

RUNS

	Month (bbls.)	Dly av. (bbls.)
Prairie P. L. Co.*	528,000	17,600
Gulf P. L. Co.	1,058,467	35,282
Texas P. L. Co.	378,133	12,604
Magnolia P. L. Co.	1,134,918	37,831
Empire P. L. Co.	1,263,766	42,126
Cosden P. L. Co.	564,030	18,801
Stanolind P. L. Co.*	1,245,000	41,500
Oklahoma P. L. Co.	2,074,325	69,144
Other lines*	3,123,000	104,100
Total September	11,369,639	378,990
Total August	13,029,328	419,301
Difference	1,659,639	40,311

SHIPMENTS

Prairie P. L. Co.	3,762,895	125,430
Gulf P. L. Co.	1,746,138	58,204
Texas P. L. Co.	1,079,849	35,995
Magnolia P. L. Co.	920,128	30,671
Empire P. L. Co.	1,857,547	61,918
Cosden P. L. Co.	711,942	23,731
Stanolind P. L. Co.	3,454,590	115,153
Oklahoma P. L. Co.	2,206,570	73,552
Other lines*	4,350,000	145,000
Total September	20,069,659	669,454
Total August	23,270,345	750,656
Difference	3,200,686	81,002

STOCKS

Prairie O. & G. Co.*	35,595,000
Gulf P. L. and Gypsy Oil Co.	7,942,451
The Texas Company	2,784,996
Magnolia Petroleum Co.	6,904,382
Empire P. L. Co.	3,488,478
Mid-Continent Petroleum Corp.	3,348,098
Stanolind Crude Oil Pur. Co.*	15,232,000
Oklahoma P. L. Co.	1,054,256
Carter Oil Co.	6,382,733
Other lines*	15,408,000
Total September	92,657,494
Total August	105,427,830
Difference	6,770,336

*Estimated.

EASTERN PIPE LINE REPORT FOR MONTH OF OCTOBER

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for September and October:

	Sept., 1931	Oct., 1931
Nat. Transit	145,864.04	154,511.51
S. W. Pa. P. L.	79,823.98	79,162.91
Eureka P. L.	306,199.28	321,800.33
Buckeye P. L. (Macksburg)	277,205.53	282,641.23
Buckeye P. L. (Cleveland)	12,190.61	12,576.07
Buckeye P. L. (Lima, etc.)	82,263.82	85,128.77
Indiana P. L.	2,702.99	2,549.84
Cumberland P. L.	146,866.79	.....
N. Y. Transit	36,392.32	36,518.13
Tide Water P. L.	22,802.35	23,220.70
Pure Oil	292,400.07	313,618.79
Stoll Oil Ref.	29,470.48	69,655.93
Bradford Tran.	413,169.77	476,204.65
Ashland Ref.	.....	144,886.55
Total	1,840,352.84	2,002,475.44
Daily average	61,345.09	64,595.98

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for September and October:

	Sept., 1931	Oct., 1931
Nat. Transit	499,112.79	532,367.42
S. W. Pa. P. L.	423,403.26	479,783.62
Eureka P. L.	372,988.75	354,253.27
Buckeye P. L. (Macksburg)	234,573.66	284,153.11
Buckeye P. L. (Cleveland)	1,944.16	1,712.38
Buckeye P. L. (Lima, etc.)	1,302,206.78	1,712,258.54
Indiana P. L.	905,355.87	856,217.10
Cumberland P. L.	115,316.63	.....
Southern P. L.	70,722.76	69,625.59
N. Y. Transit	171,412.21	191,559.68
Northern P. L.	255,413.44	168,179.95
Tide Water P. L.	465,576.21	516,207.58
Pure Oil	222,738.09	269,733.26
Bradford Tran.	480,695.64	559,039.81
Tuscarora	500,545.93	346,305.63
Ashland Ref.	.....	144,886.55
Total	6,526,110.13	6,535,782.71
Daily average	217,537.01	210,831.70

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of September and October:

	Sept., 1931	Oct., 1931
Nat. Transit	749,274.20	673,029.13
S. W. Pa. P. L.	404,189.10	435,631.21
Eureka P. L.	1,445,855.17	1,162,617.13
Buckeye P. L. (Macksburg)	347,122.32	307,630.36
Buckeye P. L. (Cleveland)	39,616.20	36,248.81
Buckeye P. L. (Lima, etc.)	2,778,403.92	2,459,295.96
Indiana P. L.	523,814.43	551,521.77
Cumberland P. L.	69,282.55	64,611.76
Southern P. L.	219,384.72	233,968.56
N. Y. Transit	105,612.34	99,292.01
Northern P. L.	298,028.03	300,534.94
Tide Water P. L.	924,216.84	1,015,782.92
Pure Oil	485,055.55	556,871.54
Tuscarora	11,544.91	11,658.70
Bradford Trans.	178,031.09	208,399.51
Total	8,492,431.43	8,417,694.91
Decrease	700,025.90	74,736.52

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of September and October, showing gross stocks of the above fields:

	Sept., 1931	Oct., 1931
Pennsylvania	3,054,494.51	3,031,430.00
Lima	664,893.87	619,693.95
Kentucky	79,690.06	75,019.27
Mid-Continent	4,202,724.97	4,145,615.17
Illinois	15,643.58	.....
Michigan	474,984.44	545,936.52
Total	8,492,984.44	8,417,694.91

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1928	1929	1930	1931
January	52,904	51,749	75,907	53,939
February	57,002	51,833	79,256	55,163
March	57,485	54,252	76,083	54,331
April	56,812	58,444	84,536	54,914
May	62,067	55,902	70,546	54,344
June	58,230	58,833	75,430	54,110
July	57,144	56,037	68,921	50,723
August	57,745	56,037	54,291	51,503
September	53,437	47,315	56,595	51,345
October	58,100	76,093	58,179	54,595
November	53,865	74,831	52,332	....
December	52,025	74,561	53,999	....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1928	1929	1930	1931
January	146,465	165,721	217,633	175,369
February	167,368	159,387	224,355	183,494
March	158,883	161,474	228,846	189,508
April	172,935	169,737	241,845	191,450
May	180,559	184,281	248,383	199,247
June	188,024	185,404	234,401	221,155
July	189,470	194,763	207,094	211,632
August	192,853	194,946	205,506	224,166
September	194,138	201,214	193,999	217,537
October	176,000	191,367	157,675	210,831
November	176,898	202,743	146,638	.....
December	173,572	186,257	143,001	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1929	1930	1931
January	7,596,564	12,220,045	11,831,091
February	8,738,835	12,991,561	11,506,488
March	9,002,058	13,247,217	11,012,162
April	8,978,172	13,233,961	11,044,487
May	8,903,560	13,052,953	10,728,238
June	8,921,275	12,396,855	9,903,340
July	9,211,565	12,268,562	9,569,340
August	9,440,643	13,047,051	9,192,457
September	9,443,067	12,812,618	8,492,431
October	9,441,101	12,437,552	8,417,694
November	9,868,535	11,851,380	.....
December	11,253,953	11,751,952	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, November 1	451,188.86
Runs from wells	474,902.43
Regular deliveries	304,925.73
Other deliveries	280,021.90

The amount of Illinois oil run by the Tide Water Pipe Co. in October was 23,220.70 bbls. Deliveries were 20,909.22 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1931—	Runs	Deliveries
October	498,124.13	325,834.95
1930—		
January	543,287.95	498,293.93
February	548,416.33	414,536.59
March	631,944.49	469,119.53
April	530,074.22	509,304.60
May	605,147.37	504,069.84
June	572,662.57	468,656.81
July	604,529.54	385,454.47
August	594,642.13	375,742.43
September	457,001.11	371,691.61
October	478,442.12	320,688.73
November	422,794.68	355,403.13
December	556,413.78	363,719.58
1931—		
January	468,429.04	469,573.19
February	429,284.54	461,262.85
March	424,638.23	356,563.26
April	421,814.98	282,532.65
May	433,231.80	322,513.95
June	510,805.78	320,258.13
July	530,009.38	289,219.05
August	476,423.56	293,231.06
September	492,183.83	323,012.50

Tide Water Pipe Co., Ltd., also delivered in October, 119,981.53 bbls. Oklahoma oil.

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans, Baton Rouge	Port Arthur Saline Pass	Tampa	Total	Total all ports
November	39,633	35,900	124,633	36,467	24,667	261,300	2,467	7,366	.....	1,767	11,600	272,900
December	21,419	14,033	122,774	32,839	33,774	224,839	6,290	10,613	2,097	290	19,290	244,129
January	17,613	13,519	154,335	32,902	30,612	248,871	2,032	11,677	2,097	3,097	18,903	267,774
February	31,321	16,929	127,786	31,714	26,857	234,607	4,536	11,571	.....	536	16,643	251,250
March	27,645	18,935	141,160	26,290	31,129	238,161	4,065	2,580	.....	1,968	8,613	246,774
April	85,000	10,533	105,000	29,767	25,533	215,833	2,733	3,400	.....	.....	6,133	221,966
May	30,129	8,774	107,000	25,452	26,710	198,065	.....	2,000	.....	.....	2,000	200,065
June	30,067	10,833	111,767	27,000	30,833	200,500	3,800	5,500	2,167	1,333	12,300	212,800
July	26,387	11,226	104,678	29,323	21,773	193,387	6,903	7,419	4,194	.....	18,516	211,903
August	32,613	16,581	91,742	22,387	25,741	188,064	4,161	2,516	.....	3,162	9,839	197,903
September	27,067	7,267	106,867	20,099	22,967	184,267	4,833	8,333	.....	.....	13,166	197,433
October	53,710	14,484	100,774	26,742	40,645	236,355	6,097	6,871	2,097	1,838	16,903	253,258

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans, Baton Rouge	Port Arthur Saline Pass	Tampa	Total	Total all ports
November	3,367	6,233	33,800	17,733	4,600	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,323	30,645	9,678	3,580	53,742	.....	.....	.....	.....	4,645	58,387
January	3,387	6,613	21,968	14,678	11,096	62,742	.....	.....	.....	.....	6,129	68,871
February	5,787	2,713	29,143	4,000	5,750	47,393	.....	.....	.....	.....	3,750	51,143
March	10,032	1,611	21,388	7,324	8,774	49,129	.....	.....	.....	.....	6,355	55,484
April	5,133	.....	19,200	16,500	10,067	50,900	.....	.....	.....	.....	4,000	54,900
May	4,452	3,064	19,903	11,226	6,258	44,903	.....	.....	.....	.....	2,355	47,258
June	4,267	.....	25,100	6,333	3,500	39,200	.....	.....	.....	.....	.....	39,200
July	6,774	1,194	24,612	11,065	9,902	53,548	.....	.....	.....	.....	1,335	54,903
August	3,452	.....	16,419	7,419	4,290	31,580	.....	.....	.....	.....	968	32,548
September	4,267	3,667	12,933	4,699	7,367	32,933	.....	.....	.....	.....	4,000	36,933
October	2,355	1,139	19,290	16,709	9,323	48,806	.....	.....	.....	.....	3,333	52,139

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
1930—										
October:	Month	18,344,953	16,823,533	23,036,563	3,517,913	1,496,553	2,143,895	3,235,560	3,627,000	72,767,023
	Daily average	585,518	536,533	742,147	116,323	52,792	69,135	104,060	117,000	2,345,581
November:	Month	18,199,459	14,941,770	22,035,322	3,459,330	1,557,870	2,136,543	3,057,100	3,222,000	66,419,699
	Daily average	693,648	498,059	734,507	115,311	51,939	71,221	98,570	107,400	2,214,654
December:	Month	17,786,728	15,067,102	21,810,389	3,432,661	1,590,951	2,167,534	3,118,663	3,326,000	66,291,999
	Daily average	573,765	486,713	703,560	110,731	51,321	69,598	100,602	107,355	2,302,645
1931—										
January:	Month	16,435,738	14,350,953	20,019,212	3,422,475	1,574,955	2,135,037	2,966,142	3,274,000	64,338,513
	Daily average	531,798	478,063	645,781	110,725	50,806	68,873	95,682	103,339	3,091,566
February:	Month	14,930,933	13,631,989	18,957,671	3,241,016	1,402,492	1,981,616	2,747,014	3,139,000	60,021,631
	Daily average	533,248	486,285	677,057	119,223	50,089	70,772	98,108	111,750	2,143,629
March:	Month	16,504,842	15,627,687	22,453,618	3,493,598	1,469,245	2,061,576	3,598,035	3,374,000	68,747,601
	Daily average	527,898	496,377	724,310	112,858	47,395	66,503	93,485	108,839	2,217,666
April:	Month	15,803,541	14,815,990	20,887,717	3,281,880	1,412,220	2,008,021	2,901,870	3,273,000	72,884,239
	Daily average	526,785	550,355	696,257	109,396	47,074	66,934	96,729	109,100	2,412,808
May:	Month	16,445,960	17,223,867	23,708,454	3,341,366	1,446,374	2,232,568	3,093,419	3,190,000	76,890,128
	Daily average	530,512	555,157	926,056	107,786	46,654	72,018	99,949	102,900	2,445,197
June:	Month	15,641,436	16,673,200	23,139,533	3,175,440	1,344,450	1,850,511	2,936,200	3,166,000	73,582,970
	Daily average	521,381	555,940	971,327	105,848	44,815	61,684	99,540	105,533	2,466,099
July:	Month	16,093,322	16,467,739	23,827,213	3,090,762	1,287,430	1,715,730	2,905,909	3,241,000	76,730,155
	Daily average	519,139	531,219	1,091,200	99,702	41,530	55,345	93,729	107,774	2,539,650
August:	Month	15,668,934	9,675,510	32,279,816	3,148,887	1,165,445	1,584,444	2,807,143	3,167,000	69,500,229
	Daily average	505,451	312,210	1,041,284	101,577	37,595	51,111	90,553	102,161	2,241,943
September:	Month	15,180,610	7,930,330	28,981,525	3,151,770	1,138,280	1,641,354	2,761,230	3,632,000	64,417,729
	Daily average	506,020	264,361	966,051	105,059	37,946	54,713	92,041	121,067	2,147,257
Total 12 months		196,758,805	178,547,202	308,727,324	39,926,098	17,026,264	23,648,254	35,378,285	39,823,000	837,830,933